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CLASSROOM ENVIRONMENT PERCEPTIONS OF BEHAVIORALLY DISORDERED AND REGULAR ELEMENTARY STUDENTS: A COMPARATIVE STUDY ACROSS MAINSTREAM AND SEGREGATED SETTINGS

BY

DOLINA JOAN MACAULAY

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF DOCTOR OF PHILOSOPHY

IN

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DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

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Et haec olim meminisse iuvabit

(Vergil)

DEDICATION

TO THE MEMORY OF MY BELOVED PARENTS, DONALD AND KATE MACAULAY, OF SOUTH UIST, OUTER HEBRIDES, SCOTLAND, WHOSE COMMITMENT TO HIGH STANDARDS, HIGHER LEARNING, AND HARD WORK SET A LIFELONG EXAMPLE FOR ME.

Gus am bris an là

ABSTRACT

This study explored the classroom environment perceptions of behaviorally disordered (BD) students in elementary schools, and compared them to those of their regular peers. A sample of 303 students in Grades 3 to 6, including 20 mainstreamed and 26 segregated male BD children, was drawn from 20 classrooms in the Edmonton Public School District. Subjects completed Actual and Preferred forms of a six-scale classroom environment questionnaire adapted from Short Forms of the My Class Inventory (MCI) and the Classroom Environment Scale (CES) (Fraser & Fisher, 1983). One-way ANOVA results showed that perceptions of BD students, as a group, did not differ significantly from those of regular students, on either the Actual or the Preferred scales. Neither were there significant differences between BD students enrolled in mainstream and segregated classes. However, a cluster analysis performed on the Preferred climate data yielded two BD subgroups with very different characteristics. One of these, designated as BD-1, closely resembled regular students in preferring classrooms characterized by more order and cohesion, and less competition and friction. The smaller subgroup, designated as BD-2, preferred significantly less order and cohesion, and significantly more competition and friction than either BD-1 or regular students. Implications for educational practices with BD children are discussed, as well as the relevance of classroom climate research to BD subgroups.

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CHAPTER I

Introduction

Purpose of the Study

The purpose of the study is to examine how, and to what extent, the classroom climate perceptions and preferences of behaviorally disordered (BD) students in Grades 3 to 6 differ from those of regular students. Selection of these grades for study was dictated (1) by the fact that, by Grade 3, such students are generally identified, and (2) by the desirability of arranging for early intervention to ameliorate the learning difficulties which they experience. The population studied includes BD students in both mainstream and segregated settings. Conclusions are drawn about how far classroom climate theory is applicable to BD students and what implications it has for identification and intervention.

Significance of the Study

BD Students and Classroom Environment

Children identified as behaviorally disordered bring to the classroom a host of behavioral, social and learning problems

(Gresham, 1982; Morgan & Jenson, 1988; Ray, 1985; Strain & Shores, 1983) which challenge the skills and resources of their teachers. The behavioral and social problems presented include inattention, low impulse control, defiance, aggression and lack of social skills. The disruptiveness of BD children often results in negative interpersonal interactions which are seen to contribute to a fractured classroom ethos.

While the most severely disruptive students in Canadian schools tend to be housed in segregated classrooms characterized by low enrollment, the majority is educated in mainstream settings, sometimes with the help of a teacher aide. Accommodating these students is frequently a burden on the classroom teacher, who may be ill equipped to handle the daily challenges presented by this salient subgroup. More effective interventions are thus called for if BD students are to be integrated successfully at the elementary level. Classroom environment research, then, is a potentially important source of data for improving educational experiences and outcomes for these students.

Classroom environment signifies the psychosocial climate within which instructional activities are conducted. For research

purposes it may be conceptualized in a variety of ways. Generally, it is thought of in terms of factors such as structure or interpersonal relationships. Fraser (1986, p. 118) claims that the nature of the classroom environment has an "important influence on students' achievement of cognitive and attitudinal goals". Moreover, studies using classroom environment instruments consistently reveal that emphasis on relationships and student participation in a well organized classroom promotes morale, interest in subject matter, and a sense of academic efficacy (Raviv, Raviv & Reisel, 1990). Crocker and Brooker (1986) report that a positive emotional climate is linked to low incidence of disruptive behavior and to greater participation in classroom communications. While attaining a positive, supportive and task-oriented climate may be targeted as a worthwhile goal for all students, it is particularly important for individuals and subgroups who are at risk in regular classrooms where their emotional and social deficits negatively influence their cognitive and affective outcomes (Kazdin, 1987).

Studies of classroom climate conducted by Fraser (1989) and others have concluded that cognitive outcomes are enhanced when congruence is achieved between the environments preferred by students and those actually experienced by them. Moreover,

research conducted by Fraser and Deer (1983) with regular Grade 6 students demonstrates that discrepancies between students' perceptions of Actual and Preferred climates are reduced when specific strategies are introduced in the classroom. Those interventions, which call for a change in teacher attitude and behavior, result in a better fit between teacher or classroom characteristics and students' preferences. This research, while pointing to the teacher as a major factor in altering the psychosocial tone of the instructional setting, highlights the importance of achieving congruence between person and environment. It might be assumed, then, that if the psychosocial environment can be altered affectively for regular students, it may also be adjusted to address specific environment preferences expressed by behaviorally disordered students, for whom person-environment considerations might play an especially critical role (Downing, Simpson & Myles, 1990; MacAulay, 1990).

To date, regular populations have provided the data base from which techniques for achieving greater congruence between students' Actual and Preferred classroom climates have been developed. The present research is directed towards establishing how far conclusions based on these populations are applicable

to the subgroup of BD students whose relationship to classroom norms may be different from that of regular students.

Severely disruptive students are commonly regarded by teachers as unpopular social misfits within the instructional milieu. In referring to teacher attitudes towards this mainstreamed group, Downing, Simpson and Myles (1990) report that BD students have "the highest rejection rates of all mainstreamed students" (p. 217). This observation is supported by Safran and Safran (1987) who confirm the alienation and lack of acceptance experienced by behaviorally disordered children. The literature further points to a record of academic failure which pursues those students (Ledingham & Schwartzman, 1984; Sturge, 1982). Given the climate of rejection which surrounds BD children, then, one has to wonder whether they perceive the classroom environment differently from their regular peers.

The Classroom Environment Construct

Modern learning theory emphasizes that student outcomes may be conceptualized as a function of person-environment fit (Bandura, 1986). That is to say, the extent to which students have positive, affirming and educationally valid experiences

depends on the degree of congruence between those individuals' personalities (or needs) and aspects of the psychosocial environment. Certainly, Bandura's (1986) concept of reciprocal determinism points to the interactive nature of personality, behavior, and environment in shaping human experiences and outcomes. It is all the more important, therefore, that environmental factors be taken into account when judgments are made about appropriate interventions for students whose learning opportunities are frequently influenced by their deviant or maladaptive behavioral patterns. Classroom environment research may thus point the way toward successful integration of such students.

There is evidence that many teachers are able to accommodate the needs of BD students with documented success (Hallahan & Kauffman, 1988; Larrivee, 1985; Walker & Rankin, 1983). Those teachers' classrooms are commonly characterized by specific environment factors (e.g., structure, routines, cohesiveness, and peer support) which are congruent with the three climate dimensions identified by Moos (1979) in his seminal work on educational environments. Moos's dimensions (Relationship, Personal Development, System Maintenance and System Change) emphasize the interactive nature of the classroom ecology, and

instruments have subsequently been developed which measure students' perceptions of the classroom psychosocial climate (Fraser, Anderson & Walberg, 1982; Fraser & Fisher, 1983; Trickett & Moos, 1973).

In the present study, several facets of classroom environment are examined, as measured by an adapted form of the My Class Inventory (MCI) (Short Form) (Fraser & Fisher, 1983) (see Appendix I), which, to date, is the only instrument developed for use with elementary school children. Classroom climate characteristics such as Cohesiveness, Difficulty, Competitiveness, Friction and Satisfaction are explored through students' Actual and Preferred perceptions. However, there are other variables which need to be addressed with regard to BD students. These factors include teacher support and order and organization, which are considered important classroom factors where disruptive students are concerned (MacAulay & Johnson, 1993). Those traits are examined in this study via an adapted form of the MCI (Short Form) (Fraser & Fisher, 1983).

Conclusion

Much of the classroom environment research conducted in elementary schools has focused exclusively on regular classroom

populations (Fraser & Tobin, 1989). Whole-class perceptions constitute most of the data so far available. The perceptions of individuals and subgroups, such as elementary BD students, have yet to be adequately explored. It would seem, then, that further research is needed if educators are to understand how BD students perceive the classroom ecology. The perceptions of behaviorally disordered children might require teachers to adopt specific strategies in order to accommodate idiosyncratic needs (or personality variables) exhibited by those children. Research findings could thus point the way toward a cost-effective and proactive approach to addressing challenges posed by current placement and programming practices for BD students in elementary classrooms. It is to this end that the present study is addressed.

Terms and Definitions

Throughout this thesis the following terms and definitions are used:

Subjects and Settings

Behavior disorder (BD), in general terms, refers to "... whatever behavior the chosen authority figures in a culture designate

as intolerable. Typically, it is behavior that is perceived as threatening the stability, security, or values of that society" (Kauffman, 1986, p. 16). Where school populations are concerned, behavior disorder refers to any behavior (internalizing or externalizing) which deviates from expected norms for a specific comparison group. In elementary classrooms, for example, children described as behaviorally disordered would fit the externalizing classification. Presenting behaviors would be characterized by a variety of deviant responses, including physical aggression, defiance, and rejection of authority. While 'children with behavioral disorders' (F. H. Wood, personal communication, July 26, 1993) is the term of choice for referring to this group of children, in the interest of brevity, the term 'BD students' is used in this thesis.

SBD refers to BD students in the study who were placed in segregated settings due to the severity of their behavior.

MBD refers to BD students in the study who were mainstreamed in regular classrooms.

BD-1 refers to a group (n=31) of BD students identified through cluster analysis as being similar to regular students in their classroom environment perceptions.

BD-2 refers to a group (n=15) of BD students, identified through cluster analysis, as being more negative in their environment perceptions than BD-1 students.

Learning disability (LD), as defined by Public Law 94-142, refers to "... the failure, on the part of a child who has adequate intelligence, maturational level, cultural background, and educational experiences, to learn a scholastic skill.... The term should be applied only to children who have a severe discrepancy between achievement and ability in one or more expressive or receptive skills, such as written expression, listening and reading comprehension, or mathematics" (Sattler, 1988, p. 598).

Regular refers to typical, or nonexceptional, students enrolled in regular, or integrated, classroom settings.

Mainstreamed (or integrated) refers to the placement of a special needs student into a regular classroom setting on a part-time, or full-time, basis.

Segregated (or special class) refers to a setting other than the regular classroom, which houses special needs students on a part-time, or full-time, basis.

Instruments

My Class Inventory (MCI) (Short Form) (Fraser & Fisher, 1983) refers to a 25-item classroom environment questionnaire which measures the Actual and Preferred perceptions of elementary students, with regard to five classroom characteristics (Cohesiveness, Difficulty, Competitiveness, Friction, and Satisfaction), through a YES/NO response format.

Classroom Environment Questionnaire (CES) (Short Form) (Fraser & Fisher, 1983)(see Appendix 1) refers to a 24-item item questionnaire similar in content and style to the MCI. Responses are recorded in a TRUE/FALSE format. A partial, and adapted, form of this instrument was used during the current research.

Perceptions and **Responses** refer to Actual and Preferred responses on the MCI, which are used interchangeably. This is consistent with the terminology adopted by Fraser (1986).

Actual refers to students' perceptions of what the classroom is <u>really</u> like. For example, the first item on the questionnaire reads: 'The pupils enjoy their schoolwork in my class'.

Preferred refers to students' perceptions of the classroom ideally liked or preferred. For example, the first item on the questionnaire reads: 'The pupils would enjoy their schoolwork in my class'.

Short Form refers to a version of the MCI or CES having a reduced number of items.

Scale refers to a group of items forming one of the environment variables on the MCI and CES questionnaires (e.g., Cohesiveness, Order and Organization).

Protocol refers to the response sheets completed by students.

Classroom environment/climate refers to the climate, tone, or ethos experienced in the classroom. The terms are used interchangeably in this thesis.

CHAPTER II

Review of the Literature

Introduction

The purpose of this chapter is to review the findings of researchers who have explored issues central to the study. That is, behavior disorder, mainstreaming practices, and classroom environment are examined. The literature review is subsumed under several topics. The first section provides an overview of behavior disorder from a Canadian perspective. Confusion surrounding the terminology is discussed, and problems with definition and identification are examined. Prevalence is reviewed and brief consideration given to male-female ratios in BD populations in general.

The second subtopic explores current mainstreaming practices in Canadian jurisdictions. Problems and challenges posed by mainstreaming of BD students are discussed. Classroom factors influencing the school experiences of BD children are the focus of the third subtopic. Literature relevant to classroom variables, such as structure and organization and interpersonal relationships, is reviewed and the affective implications for

BD children considered. Teacher characteristics including expectations, acceptance and warmth, attitude and tolerance level are reviewed, and the implications of those attributes discussed with respect to BD students. The final subtopic examines the usefulness of the classroom environment construct for addressing the needs of mainstreamed BD students. Theoretical perspectives pertinent to the determinants of classroom environment are discussed.

Overview of Behavior Disorder

Due to cultural and geographic similarities between Canada and the United States, behavior problems are generally similar in the two countries. Canadian guidelines for identifying BD students are, therefore, derived from procedures developed in the United States as a result of Public Law 94-142. The following discussion, however, illuminates some of the issues specific to the area of behavior disorder in Canada. A Canadian definition is offered and an explication of what is implied by the term in this research is outlined. Specific information pertinent to the local jurisdiction's selection procedures is also presented.

Current Issues

The terminology used to refer to BD students can be misleading and confusing, even for specialists in the field. The category of behavior disorder covers a broad spectrum of behaviors, from anxiety and withdrawal to aggression and hostility. A wide range of atypical behaviors exhibited by students, from mild to moderate and severe, is observed by educators and clinicians. Internalizing types of behavior (e.g., social withdrawal), however, are rarely considered problematic by classroom teachers, and consequently, the majority of BD cases referred and diagnosed in the school system falls into the externalizing category of behaviors (e.g., aggression and hostility). Those students are of the greatest concern to teachers, since classroom processes are seriously affected by the presence of BD children in mainstream settings.

Teachers consistently refer to the difficulty of applying generic classroom approaches considered effective in modifying deviant behavior to BD students. Comments shared by teachers during this research point to the challenges posed by the use of standard practices for all BD students ("It is impossible to treat them all in the same way, because what works for one

may not work for another" (J. Kerr, personal communication, June 2, 1991). Nevertheless, BD students identified through standard school district procedures tend to be regarded as a homogeneous group in terms of placement and/or programming. When placement decisions are made, individual differences are not generally taken into account, partly due to the fact that, to date, no single instrument has identified subtypes within the broader BD classification.

Coleman (1986) claims that the area of behavior disorder in the field of education continues to be plagued by a lack of consensus on definition and terminology. Several factors are seen to contribute to those difficulties. For instance, factors influencing concepts of deviance include: (a) variation in individual tolerance levels for behavior, (b) differences in theoretical models from which professionals operate, and (c) discrepancies in the terminology associated with emotional problems.

The literature (e.g., Helton & Oakland, 1977) has consistently reported teacher preference for students who are perceived as passive or conforming, while disapproving of aggressive students (Coleman & Gilliam, 1983). However,

individual teachers' tolerance of specific behaviors (e.g., aggression) and individuals, varies widely. Teachers are generally regarded as responding differently to some behaviors exhibited in the classroom (Coleman, 1986). This concept of deviance being "in the eye of the beholder" is widely recognized by specialists responding to teacher requests for classroom assistance.

A second factor influencing concepts of disordered behavior is the number of conflicting theories regarding the development of emotional disturbance. Physicians, psychologists and educators emerge from a wide variety of training programs that emphasize different theoretical views, diagnostic tools, and treatment procedures. Thus, a multi-disciplinary team charged with making placement decisions for an individual student may represent several theoretical positions, and consequently may view the child in very different ways. The terms used to describe symptoms can differ markedly. Observations made from the researcher's practical perspective indicate that the same child may be regarded as mentally ill by a psychiatrist, as emotionally disturbed by a psychologist and as behavior disordered by a special educator.

Personal perceptions of behavior disorder are also influenced by the terminology associated with it. Educators have asserted that the jargon used by mental health professionals has limited application to the school setting (Hobbs, 1975). The psychiatric terminology encountered in psychological evaluations of disturbed students is usually based on the DSM III-R classification system (American Psychiatric Association, 1987). Those terms, however, have not been adopted by special educators for identification purposes in the schools.

Although the federal definition of severely emotionally disturbed (SED) (currently under review) is still the official description used for behaviorally disordered children in the United States, the term, behavior disordered (BD), has been adopted by Canadian jurisdictions. This term is generally regarded as being less stigmatizing, more socially acceptable, and more practical than the psychological or psychiatric terms used.

Canadian Definition of Behavior Disorder

Winzer (1990) presents a Canadian definition of behavior disorder, which is based on Kauffman's (1977) earlier definition. Although individual Canadian provinces do not necessarily adopt

Winzer's definition, it seems particularly relevant to the experiences of educators:

> Children with behavior disorders are those who chronically and markedly respond to their environments in socially unacceptable and/or personally unsatisfying ways but who can be taught more socially acceptable and personally gratifying behavior. Children with mild and moderate behavior disorders can be taught effectively with their normal peers (if their teachers receive appropriate consultative help) or in special resource or self-contained classes with reasonable hope of quick reintegration with their normal peers (p. 23).

EPSB Criteria for Identification of BD Students

BD students included in the research sample for this study were identified through application of criteria adopted by Edmonton Public School Board (EPSB), which define such students as those

> .... whose behavior disorder has been clinically diagnosed by a psychiatrist, and who demonstrate severely aberrant behavior which is chronic and pervasive in any school setting. These students are psychotic, dangerously aggressive and/or demonstrate extremely bizarre, autistic or compulsive behavior. Documentation of the attempts made by the school to provide suitable programming is required. The behavioral assessment should document the nature, frequency and severity of the condition or disorder (both by description and through the checklist of aberrant behavior which is part of the Eligibility Request Form), other agencies involved, approaches and techniques which have been attempted (both successful and unsuccessful), and the prognosis for change under modified conditions.

Prevalence

Accurate estimation of the prevalence of disordered behavior among children is hampered by a number of difficulties. Widely divergent estimates of the incidence of behavioral disorder are offered, depending not only on who refers or evaluates the child, but also on what diagnostic criteria are used. While some prevalence studies are based on populations actually receiving services, many are based on teacher estimates in the general school population, which demonstrate the variance among individual teachers' tolerance ranges for behavior.

Kauffman (1981) suggests that 6 to 10% of the school-aged population exhibit serious and persistent behavior problems. Although wide variance likewise exists in Canadian prevalence figures (Csapo, 1981), it is suggested that "a percentage equal to, or greater than, those receiving services in the United States for behavioral disorders would exist in Canada" (Dworet & Rathgeber, 1990, p. 201).

Prevalence figures for BD students identified through EPSB procedures constitute less than 0.5 % of the school population. However, it is estimated (by classroom teachers) that there

are many more children in mainstream settings who would meet the diagnostic criteria, and thus qualify for access to special funding and programs.

While the exact sex ratio of pupils referred for behavioral intervention has not been clearly established, it has been determined that boys are more 'at risk' (and subject to referral) than girls (Hallahan & Kauffman, 1988). It is conservatively estimated that, within the general BD population, boys outnumber girls by a ratio of 8 to 1, and that boys tend to exhibit patterns of behavior which are more aggressive than those of girls (Cullinan & Epstein, 1985; Cullinan, Epstein & Kauffman, 1984; Kazdin, 1987).

The confusion and lack of consistency that is demonstrated across, and within, jurisdictions where the identification of behavioral disorders is concerned, necessarily impact on placement and programming considerations for many high-risk students. Thus, the current trend of mainstreaming those individuals is an issue that has harnessed the attention and energies of researchers and practitioners alike. The next section of the literature review focuses on the mainstreaming issue and on some of the problems posed by current integration practices.

Mainstreaming Practices

Historical Background

It is necessary to explore mainstreaming practices, at this point, since the integration of BD students is commonly perceived by classroom teachers as problematic and stressful.

The concept of mainstreaming has its origins in the U.S. movement of the 70s, which called for a more humane and progressive approach to educating children enrolled in segregated classes, or housed in institutions. Societal changes were tied very much to the philosophy of normalization in the 1960s, wherein deinstitutionalization was the major intent. This ideology was likewise influenced by the civil rights movement which came into prominence during this period. A "free and appropriate public education in the least restrictive environment" (LRE) (Knoblock, 1983) was mandated for all exceptional children, under the provisions of Public Law 94-142. Since the Cascade Model (Deno, 1970) identifies the least restrictive environment as the regular classroom, most special needs children are now being educated alongside their nonhandicapped peers, freed from the stigma and social isolation previously associated with special classes (Gottlieb, 1981).

During the past decade, mainstreaming exceptional children has become established policy in most Canadian school jurisdictions. Since legislation, calling for the 'mandatory' integration of all special needs children, was introduced in Canadian provinces, the percentage of BD students integrated has increased steadily (Winzer, 1987).

Problems and Challenges

While most professionals would concur with the philosophy and goals underlying mainstreaming ideology, and maintain that the schooling experiences and opportunities of all children should be enhanced, there is considerable evidence that the mainstreaming of BD children is fraught with problems (Downing, Simpson & Myles, 1990). Those problems include a mismatch between the children's needs and characteristics of the classroom environment.

A variety of classroom characteristics is seen to influence the success of integrating BD children. Teacher training, initial planning for integration, support for teachers, and class size are cited in the literature (MacMillan, Jones & Myers, 1976) as significant variables. Other researchers (Baker & Gottlieb, 1980)

conclude that the attitude of regular classroom teachers is crucial to the success of mainstreaming.

The literature is replete with evidence that placement of BD students in regular classrooms does little to accomplish pedagogic goals of academic achievement, social competence and appropriate behavior (Downing, Simpson & Myles, 1990). According to Gresham (1982), an inappropriately selected mainstream placement may actually represent a more restrictive environment than a segregated placement, which typically takes into account the BD student's specific needs (Carri, 1985). The classroom environment, then, may be regarded as particularly important for those students, whose psychosocial and interpersonal deficits, determine the quality of their day-to-day classroom experiences.

Children with behavioral problems and emotional needs demonstrate handicapping conditions that impose constraints on their ability to function within regular classroom settings (Kavale & Forness, 1987). Academic and social difficulties in the classroom tend to persist unless "an attitude of accommodation" is adopted by educators (Downing, Simpson & Myles, 1990, p. 223). Such an attitude would embody a combination of

the teacher qualities outlined in a later section of the literature review.

Researchers are now suggesting that special education personnel must facilitate placement of mainstreamed students by accurately matching their characteristics and needs with specific regular class settings (Apter & Conoley, 1984). This view is echoed by Coleman (1986), who recommends that settings be evaluated so that a match can be effected between environment expectations and student capabilities. This viewpoint is similarly endorsed by Algozzine and Curran (1979), who believe that a careful matching between child and teacher characteristics can be a successful educational intervention for BD children.

Hallahan and Kauffman (1988) report that disordered behavior can be attributed to undesirable school experiences. The next section of the literature review focuses on some of the classroom factors that influence the school experiences of students. Variables identified as important in the classroom environment literature are explored. Specifically, structure and organization, interpersonal relationships, teacher expectations, acceptance and warmth, as well as teacher attitude and tolerance, are discussed with reference to BD students.

Influence of Classroom Factors on BD Students

Structure and Organization

Structure and organization (which involve rules, routines, clarity, and consistent expectations) are particularly important for the classroom success of behavior disordered students, who, in the past, may have encountered inconsistent demands for behavior (Coleman, 1986). Empirical studies of regular students (e.g., Chavez, 1984) continue to show that emphasis on supportive relationships and student participation in a well organized class promotes student morale, interest in the subject matter, and a sense of academic self efficacy. Those findings concur with Brophy and Good's (1986) claim that regular students learn more in classrooms where teachers establish structures that limit pupil choice, physical movement and disruption, and where there is more teacher control of students' task behavior.

Children lacking in self-control benefit particularly well from a structured classroom setting (MacAulay, Reid & Johnson-Fedoruk, 1992; Wright & Cowen, 1982). Studies of children's psychosocial adjustment and competence (e.g., Keyser & Barling, 1981) link those outcomes to classroom environments with clear

organizational structures and codes of conduct. Tobin's (1987) study on effective teachers demonstrates that 'exemplary' teachers have well ordered classes. He also claims that classroom/behavior management is the key to success, because exemplary teachers are able to concentrate on teaching and learning rather than on keeping control of student behavior.

Humphrey's (1984) findings reveal that self-control is greatest in classes which students perceive as having a clearly defined organizational structure and code of behavior. Moreover, Reiss and Dyhdalo (1975) report that increased structure also facilitates achievement in disruptive male students. Given that such behavior is frequently associated with low levels of self-control, particularly in boys, a classroom approach focused on structure and organization would optimize cognitive and affective outcomes for BD students in mainstream settings.

Off-task responses characterized by disruptive behavior are frequently associated with the classroom seating arrangement. Researchers and teachers reporting on regular student populations have thus experimented with seating plans which might ameliorate problems of social grouping. For example, Rosenfield, Lambert and Black (1985) reported that students seated in a circular

formation engage in significantly more on-task behavior than those seated in a cluster or row configuration. Those results, however, conflict with the findings of Bennett and Blundell (1983) who demonstrate that there is a noticeable improvement in behavior when regular students are seated in rows. Wheldall, Morris, Vaughan and Ng (1981) have similarly produced empirical data which strongly suggest that seating in rows has a positive effect on the behavior and attending of regular students.

Few studies have been reported which simultaneously consider sex differences and seating arrangements. Research by Wheldall and Olds (1987) examined the effect of mixed versus same-sex seating arrangements in two mixed classes of intermediate students in England. The results clearly demonstrate that on-task behavior is higher, and rate of disruption lower, when students are seated in opposite-sex seating. Wheldall suggests that studies of the behavioral ecology of classrooms can be used to help determine management strategies. He further encourages educators to experiment with seating, in order to optimize behaviors conducive to an educationally appropriate learning environment.

Research on effective classroom management suggests that structure and organization are successfully established when

rules and procedures are announced, demonstrated, enforced, and routinized (Doyle, 1986). The importance of rule clarity to the smooth operation of the classroom environment is likewise acknowledged by Sandoval (1982) who states that "by creating, communicating, and enforcing rules for acceptable behavior, a teacher is able to provide structure for the child" (p. 111). He further asserts that the key concepts in setting limits are clarity, fairness, and consistency.

Research findings on structure and organization are particularly relevant to mainstream settings where the disruptive behavior of BD students frequently poses a threat to the general tone and management of the instructional environment (MacAulay & Johnson, 1993). Thus, the significance of a classroom approach which emphasizes structure, order, rule clarity and organization cannot be underestimated in school systems which are increasingly burdened with BD students' inability to conform to socially acceptable norms of behavior.

Interpersonal Relationships

One of the dimensions defined by Moos (1979) in his research on educational environments is the Relationships dimension. Within this construct, interpersonal relationships are considered

an important component of the classroom ecology. Ecological theorists (Apter & Conoley, 1984) believe that disturbance lies in the interaction, or reciprocal relationships, of children with their environments. Within this context, the prosocial deficits of BD children may be seen to derive from, and further cause, unsuccessful relationships with teachers and peers.

Teachers of BD students face a difficult question: Should academic skills or affective concerns take precedence in the educational curriculum? Knoblock (1983) proposes that teachers adopt a 'caring curriculum' which emphasizes both academic and emotional development. He points out that although a caring curriculum cannot solve family problems, "it can help structure a student's school experience to foster feelings of self-worth and competence ... in the context of developing positive relationships with teachers and peers" (pp. 153-154).

In alluding to the importance of teacher-student relationships, Kutnick (1988) asserts that positive, affirming interactions with the teacher are important factors for student outcomes. However, since the literature consistently reveals that BD students have the highest rejection rate of all mainstreamed children, including those identified as learning disabled (LD) (Vandivier & Vandivier, 1981), opportunities to

develop successful relationships with teachers and peers are not presented unless the teacher adopts the kind of 'caring curriculum' to which Knoblock (1983) refers. Such a curriculum would include a component to address the prosocial deficits of BD children. The same caring curriculum would also address the intrapersonal, as well as the interpersonal, aspects of human affect. Emotional support and encouragement would be the hallmarks of a caring curriculum focused on validating, not only BD students, but also all classroom members.

Coleman (1986) states that the importance of interpersonal skills in the classroom setting becomes increasingly evident as mainstreaming becomes common policy in the schools. She further claims that BD students tend to lack those skills, and do not fit either teacher or peer expectations for classroom behavior. According to Felmlee and Eder (1983), pupil deficits in self-control strategies contribute to "fractures or fissures in the program of action in the classroom" (p. 419). Since low impulse control characterizes the interactions of BD children, an environment which promotes skills conducive to personal development and growth would benefit this classroom subgroup.

Teachers frequently refer to BD children as being 'uncooperative' in the school setting. Such students are regarded

as lacking in skills which facilitate group processes in the classroom. Recent studies have provided evidence of the positive effects of cooperative learning environments on student outcomes (Slavin, 1983). Results obtained by Zahn, Kagan and Widaman (1986) reveal that cooperative techniques contribute to more favorable social relations and schoolwork attitudes. They further claim that, across all cooperative learning studies, increase in mutual concern among students is the most widely reported psychosocial effect. Other investigators posit that, when peer groups interact in a supportive way, students report being happier in class, and teachers perceive an improvement in problem behaviors (Wright & Cowen, 1985). When cooperation, satisfaction and cohesiveness are central characteristics of the classroom environment, BD students, in particular, it may be assumed, will be in a better position to maximize their cognitive, affective and social potential (MacAulay & Johnson, 1993).

Teacher Characteristics

Although the influence of teacher characteristics (including personal attributes) on student outcomes has been recognized through the ages, those who are in a position to make placement decisions for BD children may not necessarily acknowledge the significance of this classroom factor in mediating positive

outcomes for those children. Research findings support the view that certain teacher variables are critical for the successful integration of BD children (Baker & Gottlieb, 1980). Selected characteristics are thus examined.

Expectations.

Teacher expectations have long been acknowledged in the literature as a primary influence on student outcomes. A number of studies points to the dominant influence of this classroom characteristic on student performance and behavior. For example, Proctor's (1984) research demonstrates how information on student performance is fed back into the system to perpetuate the institutional 'prophecy' cycle. Thus, when a disruptive student is expected to behave in a certain way, based on past performance (or reputation), there is little incentive to strive for improvement.

Cooper and Good (1982) report that students for whom teachers have high expectations describe themselves as receiving less frequent criticism and more frequent praise than students for whom teachers have low expectations. Proctor (1984) likewise asserts that low-expectation students consistently receive fewer communications of warmth and personal regard from the teacher.

One affective consequence for the low-expectation student appears to be an increasingly negative self-perception. This link between teacher and student expectations has been demonstrated to have a substantial influence on student learning outcomes (Brattesani, Weinstein, Middlestadt & Marshall, 1981). The implications of teachers' behavioral expectations for BD students thus highlight the plight of BD children in classroom settings.

Acceptance and warmth.

Certain teacher qualities assume importance in mainstream settings, where BD students are frequently rejected by both teacher and peers. According to Kleinfeld (1975), successful teaching involves a combination of warmth and determination in enforcing conduct limits. Brophy and Evertson (1976) suggest that disadvantaged students (a group which frequently includes BD children) have a greater need for, and respond more positively to, teacher acceptance and warmth. Similarly, research conducted by Weinstein (1983) claims that students, in general, prefer teachers who are warm, friendly, supportive and communicative, while at the same time in control of students' behavior.

There is evidence from Soar and Soar (1983) that a warm and emotionally supportive teacher has a positive influence on student self-concept. Other researchers have found that classrooms where relationships are warm, and humor is frequent, are also characterized by an emphasis on respect for students (Anderson, Stevens, Prawat & Nickerson, 1988). Tobin's (1987) study on effective teachers likewise found that the classrooms of 'exemplary' teachers are characterized by pleasant interactions involving subtle use of humor.

Teacher apprehension and anxiety, as well as lack of training in managing disruptive behavior, often influence the psychosocial environment in which BD students are enrolled. While educators are generally supportive of mainstreaming behaviorally disordered children (O'Reilly & Duquette, 1988), they fear the potentially negative effects of disruptive behavior on other students (Safran & Safran, 1985). Thus the warmth, acceptance and support, which are so important for the successful mainstreaming of BD children, are all too often adversely influenced by teachers' concerns about vicarious behavioral effects. Current classroom practice, then, frequently fails to facilitate behavior change in BD children, not only due to faulty interventions, but also due to unsupportive teacher

attitudes toward disruptive children. It is conceivable, then, that teacher responses conveying acceptance and warmth could go a long way toward neutralizing the hostility and resentment observed in BD students.

Attitude and tolerance.

Like other groups studied, teachers appear to show predictable patterns of bias toward 'problem children' (Smith, Wood & Grimes, 1989). They are also more disturbed by acting out, disruptive behavior than by behavior indicative of anxiety or internalized conflict (Algozzine, 1980). Studies further reveal that teachers fear a 'behavioral contagion' effect will interfere with regular classroom processes (Safran & Safran, 1985). This latter observation is supported by the observation and experience of the researcher, whose daily interaction with teachers mainstreaming BD children points to considerable apprehension, frequently associated with 'copy cat' behavior, as well as concerns about deteriorating classroom tone.

Teachers are found to differ dramatically in their tolerance levels and expectations concerning children's behaviors (Walker & Rankin, 1983). Research findings consistently demonstrate

that BD students are rated by teachers as the least accepted, and the most negatively stereotyped, of all exceptional children (Coleman, 1986). Moreover, studies on teacher tolerance suggest that regular educators are less tolerant of maladaptive behavior than are special education teachers (Fabre & Walker, 1987; Safran & Safran, 1987). Landon and Mesinger (1989) support this observation by stating that "even the best among regular educators have a limited tolerance of certain maladaptive behaviors" (p. 248).

Teachers respond in differing ways to various types of behavior exhibited in the classroom (Coleman, 1986). That is, individual teacher tolerance levels determine the quality and level of response to deviant behavior in the classroom. What may seem like low-level disruptive behavior to one teacher may be perceived by another as extreme behavior calling for specialist intervention. Algozzine (1979) thus suggests that BD children may be more disturbing than disturbed. Other researchers maintain that once a negative teacher attitude toward a problem student develops, this perception remains unchanged despite documented behavioral improvement (Lewin, Nelson & Tollefson, 1983).

It is not surprising that teachers react negatively to enrolling BD children. The behaviors typically exhibited by those students (e.g., inattention, low impulse control, defiance, aggression, and unsatisfactory social skills) place a considerable burden on regular classroom teachers, who are neither adequately trained, nor prepared, to cope with deviant behavior in the instructional environment.

Successful integration of behaviorally disordered children may not be achieved unless teacher attitude and tolerance toward this group are modified. Weinstein (1983) observes that being aware of students as active interpreters of classroom events forces teachers to examine more closely the effects of their own behavior on the recipients of these interventions. Wheldall and Merrett (1988) likewise concur that "in order to change children's classroom behaviour teachers must change their own ways of responding to pupils ... " (p. 87).

Changing teacher responses to challenging student behavior would necessarily involve a shift in attitude and tolerance levels. Conceivably (and hopefully), a more accepting attitude toward BD children, would have an impact on affective aspects of the classroom environment.

Discussion

The literature on the classroom factors discussed emphasizes the importance of those variables on cognitive, affective, and social outcomes for BD children. The importance of a classroom approach focused on managerial efficiency, structure, and consistency cannot be underestimated. While environmental variables such as supportive interpersonal relationships, teacher and peer acceptance, high expectations, and warmth are desirable classroom attributes for all students, those characteristics are especially important in the case of students experiencing behavioral/emotional difficulties in the regular classroom.

Since regular students appear to function adequately in classrooms without specific adjustments to the existing climate, it can be assumed that their needs are being addressed. However, the dismal record of adjustment reported for BD students (O'Reilly & Duquette, 1988) suggests that something more than a token acknowledgement of the influential factors discussed is required to maximize their cognitive and social potential.

While the literature consistently documents the problematic nature of mainstreaming BD children (O'Reilly & Duquette, 1988), there is also evidence that many teachers are highly effective

in dealing with disruptive behavior without benefit of extensive training or professional certification (Hallahan & Kauffman, 1988). This observation has led some researchers (e.g., Docking, 1987) to posit that behavioral problems are, to some extent, situational, and that the success of placement for BD students can be attributed to a match being effected between students' needs and characteristics of the learning environment (Apter & Conoley, 1984). The nature of the classroom ecology may thus be of paramount importance, with respect to the mainstreaming of BD students.

Studies investigating the role of the classroom environment in influencing cognitive and affective outcomes for regular students have been conducted by a host of researchers over the years (Fraser, 1986; Humphrey, 1984; Keyser & Barling, 1981; Moos, 1979; Wright & Cowen, 1982). Results from such studies have prompted Fraser (1986) to state that "the classroom environment is such a potent determinant of student outcomes that it should not be ignored by those wishing to improve the effectiveness of schools" (p. 1). An appraisal of the classroom environment construct is, therefore, presented, with a view to addressing the classroom experiences and behavioral deficits of BD students.

The Classroom Environment Construct

Description of the Model

Moos (1979) has pointed to the need for a unifying conceptual framework to focus on the dimensions of psychosocial environments. A noteworthy feature of his work is that his theory has emerged from programs of research involving a wide variety of social settings. His scheme is useful when considering the instruments which have subsequently been developed to assess classroom environment. The three general categories, or dimensions, identified as environmental components provide the criteria from which those questionnaires have evolved. The climate dimensions identified by Moos, and as described by Fraser (1986), are briefly presented.

Relationship dimensions.

The Relationship Dimensions identify the nature and intensity of personal relationships within the environment. The extent to which people are involved in the environment and support each other is assessed. For instance, the Teacher Support dimension in classroom settings measures the amount of help, concern, and friendship the teacher directs towards the students.

Personal development dimensions.

The Personal Development Dimensions denote the basic directions along which personal growth and self enhancement tend to occur. An example of this category is the Competitiveness dimension in classrooms which emphasizes students competing with each other for grades and recognition.

System maintenance and system change dimensions.

The third category, System Maintenance and System Change Dimensions, involves the extent to which the environment is orderly, clear in expectations, maintains control and is responsive to change. Order and Organization, which emphasizes orderly, polite student behavior and organization of assignments and classroom activities, is an example of this dimension.

Measurement Instruments

Researchers studying classroom environments have developed various approaches to collecting data over the years. Most of the instruments developed to date have emerged from Moos's (1979) conceptualization of environmental characteristics, and have

subsequently been applied in a large number of educational settings throughout the world (Fraser, 1986). Individual scales on classroom environment questionnaires developed over the years reflect aspects of the dimensions delineated by Moos.

The Short Form of the My Class Inventory (Fraser & Fisher, 1983) (see Appendix I) was developed for students with reading ability as low as the third grade. Classroom variables assessed are Cohesiveness, Difficulty, Competitiveness, Friction, and Satisfaction. Another questionnaire adapted for quick assessment purposes is the Short Form of the Classroom Environment Scale (CES) (Fraser & Fisher, 1983) (see Appendix I), which differs from the MCI in that it includes scales identified as Teacher Support and Order and Organization. Both questionnaire formats assess children's perceptions of the actual (real) and preferred (ideal) environments. However, the CES was not developed for use with elementary school children. A more detailed description of these instruments is presented in Chapter IV.

Classroom Environment Assessment: Application and Implications

Classroom environment instruments have been used by researchers and practitioners alike for educational improvement (Fraser, 1989). The objective of achieving congruence between

the Actual and Preferred environments of students has been incorporated into the school improvement and teacher effectiveness movement (Fraser & Tobin, 1989). These investigations have demonstrated that greater levels of Involvement, Teacher Support and Order and Organization are perceived in classrooms taught by 'exemplary' teachers.

Studies using classroom environment instruments consistently reveal that emphasis on supportive relationships and student participation in a well organized classroom promotes student morale, interest in the subject matter and a sense of academic efficacy. Findings from the Raviv, Raviv & Reisel (1990) study point to the importance of orderliness, student initiative and a cooperative atmosphere in the classroom in mediating positive global outcomes for students. Humphrey (1984) found that fourth and fifth graders in her sample exhibited greater self-control in classes perceived as having a clearly defined organizational structure, an encouraging tone, and emphasis on independent task engagement.

Classroom environment instruments have been used consistently in recent years to associate students' responses with a variety of classroom outcomes. For example, Haladyna

and Shaughnessy (1981) studied the effects of classroom environment on student attitudes, using an instrument based on the the Learning Environment Inventory (LEI) (Fraser, Anderson & Walberg, 1982) and the CES (Trickett & Moos, 1973). Results revealed that environmental factors such as Cohesiveness and Organization were consistently linked with more positive attitudes at different grade levels, and for different subjects.

Several studies have used modified versions of the CES to establish associations between pupils' perceptions of classroom environment and psychological outcomes. A study by Galluzi, Kirby and Zucker (1980) showed that, with Grade 5 students, their concepts of themselves and others were more positive in classes characterized by greater Involvement, Affiliation, Teacher Support, and Satisfaction. Humphrey (1984) found that student self control was greater in classes perceived by students as having more Involvement, Organization and Rule Clarity. A modified version of the CES was likewise used by Keyser and Barling (1981) to study children's academic self-efficacy. It was found that self-efficacy beliefs were stronger in classes perceived to have greater rule specification and more student participation.

Academic outcomes and environment relationships have likewise been explored using the MCI. The reading achievement of Grades 1, 2, 3 and 6 students was correlated with students' responses, or perceptions, as measured by the MCI scales. It was reported that a greater degree of classroom competition was associated with lower reading scores (Fraser, 1986).

Associations between classroom environment and elementary school students' achievement were also explored for a sample of Grade 3 pupils (Fraser & O'Brien, 1985). Achievement data were collected by administering word knowledge and comprehension tests to 758 students. It was reported that performance on both word knowledge and comprehension measures was greater in classes perceived by students as having more satisfaction, less friction, and less task difficulty.

The bulk of classroom environment research has been conducted in regular classrooms, where the responses of the entire class have been subjected to data analysis. Differences between subgroups in classrooms have been investigated, but only minimally. For instance, male-female differences in environmental perceptions have been explored by Owens and Straton (1980) for a sample of students between Grades 4 and 11. Consistent results across grade levels showed that girls preferred more cooperation

than did boys, while boys preferred more competition than did girls.

A few researchers have also examined the climate of different settings for exceptional children. The CES was used by Simpson (1980) to investigate the relationship between classroom environment and the achievement and self-concept of mentally handicapped students in secondary schools. Findings revealed higher student achievement in classrooms characterized by rule clarity, order and organization, teacher control, and innovation. Results also pointed to elevated self-concept in classrooms characterized by greater levels of student involvement, affiliation, and teacher support.

More recently, Leone, Luttig, Zlotlow and Trickett (1990) conducted research using the CES with BD adolescents and young adults at the secondary level, in both regular and special classes. Results pointed to differences between students' perceptions in the two distinct settings. Specifically, student satisfaction with school was related to greater levels of perceived Involvement, Affiliation, and Teacher Support for the special students, but not for those in regular classrooms.

The Actual perceptions (real experiences) of segregated BD and regular students were explored by Trickett, Leone, Fink and Braaten (1993) using a CES format adapted for special education groups. Results from the 58-item CES-SP scale showed that, compared with the regular sample, BD students affiliated with each other less. They also experienced the classroom environment as being less orderly and organized, with teachers exercising a greater degree of control than was perceived in regular settings. Moreover, the BD classes reported a lower task orientation and level of involvement in their classrooms.

Information about classroom environments, as measured by instruments based on Moos's (1979) environmental dimensions, could be useful for guiding programming decisions for BD students. Teachers concerned about the classroom experiences of behaviorally disordered children might subsequently initiate changes to bring about qualitative improvements in the classroom environment. Such improvements might result from teacher awareness of students' actual experiences and preferences concerning the classroom psychosocial environment.

Theoretical Orientation

A theoretical consideration of the classroom environment construct is offered in order to illuminate the philosophical underpinnings of the paradigm. Educators adopting such classroom perspectives, then, may be regarded as embracing the theoretical positions discussed.

Moos's conceptualization of environments, with its emphasis on the interaction between classroom characteristics such as relationships, personal development and managerial aspects, reflects a particular theoretical stance with respect to classroom practice. The following discussion draws on the observations and speculations of a number of prominent theorists considered influential in shaping pedagogic practice, and thus children's school experiences. The theoretical explanations and ideas presented provide a link between the influential classroom factors already examined and Moos's framework. Assumptions about environments, behavior, relationships, and the teacher's role are explored through various perspectives.

One way of thinking about classroom life is in terms of Lewin's (1935, 1936) seminal work in field theory. Lewin's contribution was to recognize that both the environment and

its interaction with personal characteristics of the individual are potent determinants of human behavior (Fraser, 1986).

Recent developments in social learning theory similarly point to the interdependence between personal, behavioral, and environmental determinants of human functioning. Bandura's (1986) concept of reciprocal determinism envisages that constant interaction between environment, behavior and the person (or personality) shapes human behavior. He further asserts that behavior **creates** environments. According to Bandura, people can influence the environment by acting in certain ways and the changed environment, in turn, influences their subsequent behavior. The concept of reciprocal determinism thus implies that the interaction of organisms within an environment contributes to the quality of the relationships therein. Within this view, the teacher's role and persona are regarded as integral determinants of children's classroom experiences. Teacher behavior, then, may be perceived as inextricably intertwined with the behavior of students.

Classroom teachers frequently ascribe the BD student's difficulties to a 'bad attitude'. If such an assumption merits consideration, then the teacher's role in ameliorating attitudinal problems is crucial. Gagné (1984) contends that

"for attitude learning, the human model is an essential component" (p. 308). The influence of exemplary modelling is likewise acknowledged in Bandura's (1986) cognitive paradigm which bases its premise on the observational learning construct. The character and integrity of the teacher thus assume a powerful role in influencing children's behavioral and prosocial outcomes.

In alluding to self-efficacy outcomes for children, Bandura claims that individuals with high perceived self-competence tend to have more control over the events in their environment. Disruptive children, who typically exhibit behavior indicating poor internal and external locus of control (Rotter & Hochreich, 1975), would thus benefit from a pedagogical approach which reflects the thinking of theorists ascribing human behavior to the interaction between person and environment.

Cognitive psychologists are not alone in advancing understanding of environmental processes. Thelen (1981) observes that the attitudes, behaviors, and relationships which take place in the classroom emerge as a function of the teacher's skill in group processes. He further states that one can predict the morale and achievement of a class simply from knowledge of the teacher's behavior. Thelen also identifies the teacher's

task as conducting the class "in such a way as to move its way of life toward this integration of supportive personal relationships" (p. 96).

Prominent theorists in curriculum inquiry similarly endorse a humane pedagogical approach congruent with Thelen's thinking. The deliberative perspective on classroom interaction views teaching as a human endeavor and a 'moral activity' (Reid, 1979). The notion of the teacher 'putting a human face' on the curriculum is further entertained by Reid, who perceives the thoughtful educator as a rational and humane individual engaged in facilitating cooperative classroom processes.

Summary

Behaviorally disordered children constitute a highly salient and problematic subgroup in elementary classrooms (O'Reilly & Duquette, 1988). Research findings suggest that negative student outcomes can result from the unrewarding nature of children's classroom experiences. Hallahan and Kauffman (1988) go so far as to claim that 'undesirable school experiences' can be an etiological factor in behavior disorders. While classroom processes per se are not seen to 'cause' disruptive

behavior, there is evidence that certain classroom characteristics, such as teacher attitude, can ameliorate or aggravate already-existing behavioral challenges (Stephen, Blackhurst & Magliocca, 1982).

Integration policies require that exceptional children be placed in the least restrictive environment (LRE), specifically the regular classroom. The mainstreaming literature, however, points to the unrewarding nature of those placements for BD students (Vandivier & Vandivier, 1981). Research findings are replete with evidence citing negative teacher attitudes (Safran & Safran, 1987), as well as rejection by peers (Smith, Wood & Grimes, 1989). Frequently, the consensus is that indiscriminate mainstreaming of BD students is an ill-advised and counterproductive move.

Hitherto, the assumption has been that the purpose of classroom climate research should be to bring about closer approximation of Actual to Preferred student climates, and that, therefore, studies targeted on BD students should be undertaken with this outcome in mind. However, since it is possible that BD students may perceive, and prefer, environments that are markedly different (i.e., deviant) from those of regular

students, such an assumption should not be automatically entertained. It may be that, from a classroom climate perspective, the issue of mainstreaming BD students is more complicated than existing theory would suggest.

Current practice in placement and intervention for BD students can result in costly and frequently ineffective programs. However, Downing, Simpson and Myles (1990) suggest that it may be possible to accommodate behavioral deficits more economically through manipulation of classroom factors of the kind discussed in this review. These factors include structure and organization, positive peer relationships, and a supportive and accepting teacher attitude. A combination of those characteristics, it may be postulated, will contribute to BD students' cognitive, social and affective progress. However, the dismal record of adjustment reported for BD students suggests that amelioration of their behavioral, and therefore their learning, deficits through attempts to maximize these characteristics of their classrooms may not be a straightforward matter.

The following chapter presents, and discusses, the research hypotheses formulated with regard to the study of behaviorally disordered students and classroom climate in elementary schools.

CHAPTER III

Research Hypotheses

Introduction

Review of the literature on BD students and on classroom climate research suggests that studies of person-environment fit could have important implications for the theory and practice of placement, programming, and instruction for BD children. However, to date, regular populations have provided the data base from which conclusions have been drawn about students' perceptions of Actual and Preferred classroom climates, and therefore about the kinds of interventions that should be recommended. Thus, it cannot be assumed that a direct translation can be made to the case of BD children.

In the first instance, the technical feasibility of using classroom climate measures with students who are in many ways different from regular populations needs to be established. It must, for example, be suspected that tests carried out on subjects who experience difficulty in sustaining attention may be unreliable. Secondly, the possibility must be considered that students who reject classroom norms may not respond in

anticipated ways to climate scales developed for regular populations. An important component of the present study, therefore, will be an inquiry into the adaptability of classroom climate measures to the study of BD students, both from a technical point of view, and from the perspective of the fit between established intervention theories and the character of classroom climate perceptions of BD children.

Actual Classroom Climate Perceptions of BD and Regular Students: Rationale for Hypothesis 1

Assuming that reliable testing is possible, it is first of all necessary to know in what ways, if any, BD children differ from regular students in their perceptions of Actual classroom climate. Currently available studies on regular populations suggest that Actual climate perceptions are quite stable within classrooms. That is, very similar answers are given, irrespective of which students are asked to respond to climate scales. Girls, for example, produce mean scores which are very close to those yielded by boys. Both perceive similar degrees of cohesion, satisfaction, and so on. But BD children, the literature shows, constitute a tiny proportion of the total population, and research conducted on normally constituted samples is unlikely

to show them up as a discrepant subgroup. Yet it should not be assumed that a subgroup with the reported characteristics of BD children would perceive the classroom in the same way that other children do.

The first hypothesis to be tested, therefore, concerns possible differences between the Actual classroom climate perceptions of behaviorally disordered students in grades 3 to 6 and those of regular students in the same grades. Selection of these grades for study was dictated (1) by the fact that, by Grade 3, BD students are generally identified, and (2) by the desirability of obtaining data on the kinds of students who are most likely to be helped by interventions.

Hypothesis 1.

The Actual classroom climate perceptions of BD students in Grades 3 to 6 are not significantly different from those of their regular peers.

Preferred Classroom Climate Perceptions of BD and Regular Students: Rationale for Hypothesis 2

In the case of Preferred climates, some within-population differences have already been noted in the literature. Where Preferred climates are concerned, girls, for example, may show significantly higher levels of preference for cohesion and satisfaction than do boys. We must suspect, therefore, that it is even more likely that BD children will prove to be atypical when Preferred climates are measured than when they are questioned about Actual climates.

Hypothesis 2.

The Preferred classroom climate perceptions of BD students in Grades 3 to 6 are not significantly different from those of their regular peers.

Actual and Preferred Classroom Climate Perceptions of Mainstreamed and Segregated BD Students: Rationale for Hypotheses 3 and 4

While some BD children are enrolled in regular classrooms, others are educated in segregated settings, so that interventions

to improve their educational outcomes can be planned along different lines. Research has drawn attention to important differences between the two types of environment, and has suggested, for example, that there may be a mismatch between the needs of BD children and some characteristics of the typical classroom (Carri, 1985; Downing, Simpson & Myles, 1990). It might be expected, therefore, that differences in classroom climate perceptions will exist within the BD population, according to whether they are placed in mainstreamed or segregated settings. Classroom climate data may also provide insight regarding the desirability of choosing either setting in individual cases.

Hypothesis 3.

The Actual classroom climate perceptions of mainstreamed BD (MBD) students in Grades 3 to 6 are not significantly different from those of segregated BD (SBD) students.

Hypothesis 4.

The Preferred classroom climate perceptions of mainstreamed BD (MBD) students in Grades 3 to 6 are not significantly different from those of segregated BD (SBD) students.

Differences Between Actual and Preferred Classroom Climate Perceptions of Regular Students and BD Students: Rationale for Hypotheses 5 and 6

In order to plan effective intervention for BD students, based on classroom climate measures, it has to be established that the difference between Actual and Preferred climates are the same for them as for regular students. Classroom climate research has worked, implicitly or explicitly, with a learning model which assumes that an increase in factors such as cohesion and satisfaction, and a decrease in factors such as friction and competition, are not only desired by students but are also associated with improved outcomes, including higher levels of academic achievement. This learning model, then, becomes the basis of a practical theory of intervention.

It has to be noted, however, that reported studies which provide confirmation of the model have been conducted on regular populations. It may be necessary, then, in the case of exceptional subgroups, such as that constituted by BD students, to check whether the basic assumptions of the model are valid. The possibility has to be considered, for example, that students who exhibit symptoms of aggression and hostility may favor climates characterized by high levels of friction, so that,

if the implications of the model were followed through, intervention would require strategies for raising levels of friction, contradicting the philosophy on which classroom climate theory is based.

Hypothesis 5.

The Preferred classroom climate perceptions of regular students in Grades 3 to 6 are not significantly different from their Actual perceptions.

Hypothesis 6.

The Preferred classroom climate perceptions of BD students in Grades 3 to 6 are not significantly different from their Actual perceptions.

Summary

This study, sets out (1) to devise or adapt instruments suitable for measuring the classroom climate perceptions of BD children, (2) to administer these instruments to a sample of students including subgroups of BD children enrolled in both

mainstream and segregated settings, and (3) on the basis of the data obtained, to test a series of hypotheses (1-6) reflecting unanswered questions emerging from the literature review about the applicability of classroom climate research and theory to BD children.

The following chapter describes the research methodology adopted during the study. Subject selection procedures, and the development/adaptation of classroom environment instruments are presented. A description of the research design is offered, and data collection methods are explained. Finally, data analysis procedures are reported for the testing of Hypotheses 1 to 6.

CHAPTER IV

Method

Subject Selection Procedures

Students enrolled in Edmonton Public Schools, Alberta, Canada were the focus of inquiry in this study. One hundred seventy three boys boys and 131 girls enrolled in elementary classrooms, between Grades 3 and 6, comprised the original sample. Participating students, including 47 BD children, were housed in 20 classrooms across 10 schools, all within city limits. It should be noted that the only female BD student in the study was eliminated from the final sample, in order to maintain an all-male BD group. Table 1 describes the final research sample by sex, classification, grade, and setting. The BD students targeted for study were identified through school district assessment procedures. The criteria for identification adopted by the Edmonton Public School Board (EPSB) are described as follows.

Identification of BD Students

Identification of BD students in Edmonton Public Schools is based on a variety of data sources. In the first instance,

Table 1

Description of Research Sample by Sex, Classification, Grade, and Setting

Category	Grade/Class					Total
	3	4	5	6	Special	
Boys						
BD	4	6	4	6	26	46
Regular	40	39	23	25	--	127
Girls						
BD	--	--	--	--	--	---
Regular	37	44	15	34	--	130
Total	81	89	42	65	26	303

BD: n=46

Regular: n=257

a classroom teacher or administrator considers the definition of behavior disorder used by EPSB (see p. 19) and if the student in question appears to fit this definition, an Eligibility Request Form (see Appendix II) is submitted to central office in order to have the child assessed by EPSB specialists. After parental consent has been obtained, a consultant or psychologist visits the school to observe the child in the classroom. A checklist of observable behaviors is completed by the classroom teacher, and anecdotal information supplied by other teachers who interact with the student on a regular basis. Duration of the problem and a description of the most problematic behaviors are documented. A record of strategies previously attempted is obtained, and further screening may take place. The student is also interviewed.

Outside agencies or professionals may also provide information for identification purposes. For example, a diagnostic statement may be solicited from a physician or a psychiatrist involved in the case. When all the data have been gathered and it has been established that a severe enough problem has existed for a minimum period of six months, the student referred may be considered eligible for access to special class placement, special programs, or in-class assistance.

Personal contact with EPSB personnel suggests that students referred for behavioral intervention exhibit a wide variety of problems, ranging in severity from moderate to severe. However, district policy specifies that only those diagnosed as severely disordered may qualify for special funding. The BD children selected for investigation in this study met the EPSB identification criteria in every case. A description of the BD sample, as well as their classroom placement, is offered.

Description and Classroom Placement of BD Sample

Forty-six boys and one girl comprised the original BD sample. Those students meeting EPSB identification criteria were assigned to two different classroom settings. While all of the students diagnosed were described as being severely disturbed, 43% of the BD sample were enrolled full-time in regular classrooms. Those BD students regarded as being most disruptive, and least able to function in mainstream settings, were placed in special classes where emphasis was placed on prosocial skills and problem management. Thus, 26 boys (who comprised 57% of the BD sample) were enrolled in segregated settings for most of the school day, with daily access to regular classroom programs for a portion of their instruction. The

remainder of the sample, 20 boys and 1 girl, were mainstreamed in regular classrooms for the entire school day.

The BD sample included one child diagnosed as schizophrenic, as well as one socially withdrawn subject who was the only girl in the group. This female student was later eliminated from the sample in order to create a completely male BD group. One subject, a mainstreamed Grade 4 boy, was medicated (Ritalin) for hyperactivity. Further information regarding the BD sample (for example, achievement, medical background, peer relationships) was unavailable during data gathering procedures.

Accurate prevalence figures for the BD population in Edmonton Public Schools were not available during the investigation. However, based on information received from an EPSB psychologist, a total of 328 children (0.45%) is currently identified as behaviorally disordered. Approximately 290 of those students are enrolled in elementary grades, half of them in mainstream settings. Records which show that 99% of BD children diagnosed are male, also indicate that there is an increasing demand by teachers for enrolling BD students in special classes. For example, in the school year 1990-1991, 17 new special classes were created.

Although the investigation's main focus was the environment perceptions of BD students, classroom peers of the mainstreamed BD (MBD) group were also targeted for study for comparison purposes. Those regular students numbered 257.

The entire sample of 303 students, which was housed in 20 elementary classrooms, was not selected on a random basis. Recruitment of subjects was pursued in the following way.

Recruitment Procedures

School district administrators were approached with regard to obtaining a statistically adequate sample of BD students, all of whom met the same diagnostic criteria for BD classification. It was specifically requested that a minimum of 25 BD students be recruited from Edmonton Public's special classes, along with a similar number from mainstream settings. A sample of this size was considered a modest request since Edmonton Public had already identified almost 300 students in elementary classrooms as being behaviorally disordered. Principals were subsequently notified about the upcoming research and requested to advise district personnel with respect to participating in the study.

While some administrators were committed to becoming involved in the research, most of those approached did not wish to participate in the study. This state of affairs necessitated that Edmonton Public be approached a second time to acquire a large enough sample. A second list of schools was subsequently forwarded for consideration, with a cautionary note advising that no more schools would be participating. It thus became apparent that procuring a sample for this study was somewhat problematic. Due to the reluctance of some principals and teachers to participate in the study, the sample obtained may not be regarded as representative of the BD population in Edmonton Public Schools. Access to such a limited pool of BD students in elementary schools thus suggests that caution should be used in interpreting students' responses.

Notwithstanding the reluctance of some schools to participate in the study, permission was granted to collect data in 20 classrooms, and teachers were requested to send letters of consent home with the students. With data collection tentatively targeted for January, 1991, special emphasis was placed on ensuring that BD students in particular return their consent forms.

While some schools were aggressive in their efforts to pursue parental consent, others were less so. It was thus decided that, although receipt of consent slips from all BD students in segregated settings was necessary, within mainstream settings, consent forms from all BD students together with 50% of their classmates, constituted the criterion for collecting classroom data. By the time the study was launched, all targeted BD students were available for testing, and approximately 70% of mainstream peers completed the questionnaires. The final sample reached a very satisfactory total of 303 students, and included 46 (15%) BD children, which represented approximately 16% of Edmonton Public's elementary BD population.

Instrumentation

Classroom environment was measured using a combination of two climate measures. Students' Actual and Preferred perceptions of the psychosocial environment were assessed by means of the My Class Inventory (MCI) (Short Form) (Fraser & Fisher, 1983), together with two scales adapted from the Short Form of the Classroom Environment Scale (CES) (Fraser & Fisher, 1983) (see Appendix I). A description of the research instruments is presented.

The My Class Inventory

The MCI (Short Form) is a one-page questionnaire which includes five scales representing two of the three environment dimensions identified by Moos (1979): the Relationship Dimension (nature and intensity of personal relationships), and the Personal Development Dimension (basic direction along which personal growth and self-enhancement tend to occur). The Relationship Dimension is represented by the MCI scales of Cohesiveness (COH), Friction (FRI) and Satisfaction (SAT), while Difficulty (DIF) and Competitiveness (COM) refer to the Personal Development Dimension. YES/NO responses in each five-item scale are recorded on the questionnaire itself.

Since the MCI was developed for implementation with lower grades, the items require a Grade 3 reading level. This low reading level renders the instrument particularly suitable for use with BD students who are typically weak in reading skills. Appealing in language and format, it incorporates appropriately worded items relating to students' perceptions of Actual and Preferred classroom environments. Students indicate on the questionnaire how they perceive or experience the real or existing climate, in addition to how they would like it to be.

In this study, both Actual and Preferred versions appear back to back on the same protocol.

The MCI (Short Form) is an abridgement of the original 38-item Long Form (Fraser, Anderson & Walberg, 1982). Table 2 presents statistical information demonstrating satisfactory psychometric properties of both forms of the MCI (Fraser, 1986). Alpha coefficients for the Short Form indicate satisfactory internal consistency for the instrument. Coefficients range from 0.58 to 0.81 for the Actual version, and from 0.60 to 0.82 for the Preferred version.

The Classroom Environment Scale

Because the MCI (Short Form) (Fraser & Fisher, 1983) did not include a scale which measured Moos's dimension of System Maintenance and System Change, two CES (Short Form) scales, Order and Organization and Teacher Support, were adapted for use by the researcher. Order and Organization (ORD) assesses the extent to which students behave in an orderly, quiet and polite manner, as well as the degree of overall class organization. The Teacher Support (TS) scale measures the extent to which the teacher helps, befriends, trusts, and is interested in students.

Table 2

Concurrent Validity, Internal Consistency and Discriminant Validity Results for MCI (Short Form)

Scale	Correlation with Long Form		Alpha Reliability		Mean Correl. with Other Scales	
	Act.	Pref.	Act.	Pref.	Act.	Pref.
COH	0.97	-	0.81	0.78	0.25	0.30
DIF	0.91	-	0.58	0.60	0.31	0.31
COM	0.95	-	0.70	0.77	0.11	0.32
FRI	0.91	-	0.78	0.82	0.27	0.34
SAT	0.94	-	0.68	0.75	0.30	0.38

Adapted from Fraser, 1986, p. 56.

Those two variables, which reflect classroom structure and teacher qualities (such as warmth and emotional support), are considered important characteristics in terms of influencing outcomes for BD students.

The original four items on the CES (Short Form) scales, ORD and TS, were increased to five, and the TRUE/FALSE response format changed to YES/NO to parallel the MCI format. Actual and Preferred versions appeared back to back, and wording was simplified to accommodate the reading deficits commonly associated with BD students. This instrument was used during the first pilot study. However, difficulties were noted during administration of the questionnaire, and a second pilot study was launched using a format adapted from the MCI (Short Form).

The adapted MCI questionnaire consisted of seven scales, comprising five items each. This was the instrument used for data collection in the second pilot study (see pp. 80-81), and also in the main study. It was completed, in Actual and Preferred forms, by 304 subjects. Scale descriptions for the final instrument are presented in Table 3. This table, however, lists only six scales, since Teacher Support (TS) was retrospectively dropped after data analysis indicated that it lacked adequate reliability (see p. 86).

Table 3

Scale Descriptions for Adapted MCI (Short Form)

Scale	Description
Order and Organization (ORD)	Emphasis on students behaving in an orderly, quiet and polite manner, and on the overall organization of class activities
Cohesiveness (COH)	Extent to which students know, help and are friendly toward each other
Difficulty (DIF)	Extent to which students find difficulty with class work
Competitiveness (COM)	Emphasis on students competing with each other
Friction (FRI)	Amount of tension and quarreling among students
Satisfaction (SAT)	Extent of enjoyment of class work

Adapted from Fraser, 1986, p. 20.

Scoring Procedures

Scoring procedures for the MCI, which are objective in nature, adhere to the use of a simple system whereby 1, 2 or 3 is assigned to each student response. A score of 1 is low, while a score of 3 is high. A middle score of 2 is designated for spoiled or omitted responses. The highest score that can be obtained in a scale consisting of 5 items is 15, while the lowest score is 5. In order to allow for the possibility of obtaining and using a climate score representing the sum of all the scales, polarity was reversed for three of the six scales retained. Thus, a score of 15 on Cohesiveness, Satisfaction and Order and Organization indicates a greater degree of the classroom characteristic being assessed, while a score of 5 suggests less of the climate variable being measured. High and low scores obtained in Friction, Competitiveness and Difficulty, however, are interpreted in the opposite manner.

Research Design

A quasi-experimental design was utilized in this study. The design adheres closely to that explicated by Wiersma (1986) in his text on research methods. That is, rather than randomly assigning groups for investigation, intact groups were identified and targeted for involvement in the research. This differentiation between experimental groups renders the research design quasi-experimental, according to Wiersma's (1986, p. 139) definition:

> Quasi-experimental research involves the use of intact groups of subjects in an experiment, rather than assigning subjects at random to experimental treatments.

Data Collection

Two pilot studies were conducted prior to implementation of the main study. While only one pilot study was proposed initially, subsequent to collection of interim data it became apparent that some problems encountered during administration procedures necessitated closer investigation of the research instrument. The pertinent details are presented.

Pilot Study #1

A pilot study was conducted several weeks prior to launching the main investigation. This step served as an opportunity to time administration procedures, to fine tune or adjust the wording of the instrument, and to assess the amount of individual help required by students. Thus, initial procedures were intended to identify potential weaknesses in either the instrument or in the administration process.

Twenty students, 12 boys and 8 girls, 11 of whom were in Grade 3 and 9 in Grade 4, participated in the pilot study which was conducted in a regular split 3/4 elementary classroom. Although this classroom was not included in the main sample, the student group met the criteria established for it. The grade split was considered to be advantageous in terms of assessing the appropriateness of the reading level of the instruments. Given that BD students are typically weak in reading skills, the 3/4 split would allow for more effective comparisons between grade-related reading competencies.

An adapted form of the Classroom Environment Scale (CES) (Short Form), modelled on the MCI format, was used for this initial part of the study. Wording was changed slightly by the

researcher, and Actual and Preferred questionnaires were presented back to back. Counterbalancing procedures were adopted in that half the class completed the Actual form, while the other half responded to the Preferred format. This procedure was then reversed, so that all students completed both versions of the questionnaire. Total administration time was 30 minutes.

Data collection utilizing a CES scale adapted for implementation at the elementary level presented a number of problems. In the first instance, counterbalancing within the classroom proved to be confusing for young students. Reading questions aloud also proved to be counter productive, since those who were able to read quickly wished to proceed at their own pace without being distracted by the researcher. Moreover, despite modifications to the wording of the items, the students encountered difficulty with vocabulary and usage. For example, several children wanted to know what "goes out of his way" meant. It also became apparent during hand scoring that Grade 3 children did not fully understand some of the questions. This was determined by comparing students' Actual and Preferred responses, which pointed to contradictions in the overall data.

In general, Grade 3/4 students found the CES wording and counterbalancing procedures somewhat difficult. They were

inattentive and off task throughout the 30 minute visit, a situation considered as much a function of the confusion generated by the instrument as the overall inattentiveness of the class. It was thus decided that both instrument and administration procedures should be overhauled and a second pilot study launched in order to eliminate problems encountered during the first trial run.

Pilot Study #2

Two weeks after the first pilot study had been conducted, a similar practice run was conducted with the same class, during the same time of day. On this occasion, however, a different instrument was utilized to record students' perceptions of the classroom environment.

For the second pilot study, both Actual and Preferred versions of the MCI (Short Form) were used. However, in order to obtain data that would present a more balanced picture of the classroom psychosocial environment, two additional scales were included in the instrumentation. That is, simplified forms

of the CES scales, Order and Organization and Teacher Support, were adapted in such a way as to parallel the MCI format (see Appendix I).

On this occasion, counterbalancing did not take place, and even although the class was extremely unruly and inattentive the entire visit lasted 20 minutes compared with 30 minutes on the previous trial. The students completed the Actual form of the two adapted CES scales first, followed by the Actual version of the MCI (Short Form). The Preferred forms were completed in the same way.

Considerable care was exercised to ensure that the students were all completing the same side of the questionnaire simultaneously. Poor listening skills necessitated that directions be repeated frequently and many children had to be reminded about checking their responses. Students were also observed to copy each other's responses. Some difficulty was still noted with vocabulary and wording, and several children complained about the print size in the MCI questionnaire being too small.

Overall, the second pilot study presented fewer problems to the Grade 3/4 students. Furthermore, despite disruptive

behavior among the boys, several children were able to offer helpful suggestions for facilitating administration of the questionnaire. It was generally agreed that procedures would be simplified if another teacher were present to help with the queries, as well as with the disciplining of "the bad kids who won't listen".

It was also suggested that, since the print size and spacing on the MCI protocol presented problems, a ruler or a slip of paper would help to match items and responses more easily. Based on the researcher's observations and the students' feedback, it was thus decided to conduct the study using the instrument tested during the second pilot study. It was also concluded that it required more than one person to administer the questionnaire and to supervise the most disruptive students in the classroom.

The possibility that the teacher's presence in the classroom would result in biased responses, was seen to be offset by the assurance that students would be more on task, and more likely to complete the questionnaire properly. A decision was also reached with regard to counterbalancing. The procedures adopted in the main study emerged as a result of the researcher's observations during the two pilot studies.

The Study

The study was carried out over four weeks, from the end of January until the end of February, 1991. Earlier attempts to examine students' perceptions of the classroom environment might have yielded unreliable or invalid data since it takes time for a classroom tone or climate to develop. Halfway into the school year, however, a classroom ethos is usually established and students' responses are more likely to represent a realistic assessment of the psychosocial environment.

The MCI (Short Form) and the two adapted CES scales were administered to each class in a single 20-minute period. This was the amount of class time that administrators generally suggested teachers might allocate to the study. Classroom teachers assisted in supervising student behavior and helped with administration procedures, including the distribution of protocols.

Before data were collected, signed consent forms were obtained from parents. Those students not returning slips were instructed to read quietly until the questionnaires had been completed. The questionnaires were then administered by the

researcher, who demonstrated sample items and responses on the blackboard. During this demonstration, children were encouraged to ask questions and to seek clarification as needed.

Counterbalancing was accommodated by alternating Actual and Preferred forms of the instrument across classrooms. For example, in Class 1 Actual perceptions were recorded first, while the Preferred format was administered first in Class 2. With the exception of one class, where questionnaires were administered by the teacher, this pattern of data gathering was maintained until all 20 classes had completed the questionnaires. In general, students behaved well and data collection progressed in a smoother and more efficient manner. In most classrooms, teachers were available to supervise students and to assist with the administration of questionnaires.

Before the protocols were collected, students were requested to check that all items had been checked YES or NO. Participants were also reminded to print their names on both sheets. While individual student responses were not shared with the teacher, general perceptions elicited by students were made available to teachers and administrators, all of whom had requested feedback upon completion of the study.

Data Analysis

Scoring of MCI Protocols

Data from 303 completed MCI questionnaires, together with the Order and Organization (ORD) and Teacher Support (TS) scales, were hand coded by the researcher and entered in an SPSS file by data processing personnel at the Centre for Research and Measurement in Education (CRAME) at the University of Alberta (future references to the MCI denote the adapted form, which includes the additional ORD scale). The file also included data on the sex of the students, the class and school in which they were enrolled, type of setting (mainstream or segregated), as well as student classification (regular or BD). A double entry procedure was used to ensure that the data were error free.

The data were first of all examined to establish internal consistency. In order to allow for the possibility of carrying out analyses on scores summed over climate scales, polarities were reversed (e.g., a score of 1 now became 3, and vice versa) for the Difficulty, Friction and Competitiveness scales, and the interpretation of results adjusted accordingly. For example, a significantly lower score obtained on the Friction (Preferred)

scale by BD students now indicated that this subgroup preferred more friction than their regular peers. In other words, less is interpreted as more. In keeping with Fraser's (1986) scoring criteria, positive/negative signs were not assigned to data as reported in tables. Although reversing the polarity in scales did not prove to be advantageous with respect to highlighting the environment perceptions of different groups, this method of presenting the data has been retained in tables reporting results of data analysis. The reversed scales are asterisked in the tables, for the reader's convenience.

Internal Consistency of MCI Scales

Scores were obtained for the seven classroom climate scales of the adapted MCI, and means and standard deviations calculated. Internal consistency measures were obtained using Hoyt's (1960) estimate of reliability. On the basis of these results, the Teacher Support (TS) Scale, with alphas of 0.37 and 0.52 for Actual and Preferred, respectively, was excluded from further data analysis. Although Difficulty (DIF) was also found to be statistically less robust than the rest of the scales, both Actual and Preferred scales were retained, in order to preserve an intact questionnaire from which comparisons could be made with previous MCI studies (Fraser, 1986). Correlational analyses

were then carried out to establish interrelationships between the classroom environment scales.

Hypothesis Testing

Analysis of variance.

Once it had been established that the MCI data were appropriate for the purpose, the research hypotheses were tested using one and two-way analysis of variance procedures, and differences between, and within, groups were examined. ANOVAs were computed to analyze students' Actual perceptions of classroom climate through comparisons of boys with girls, BD students with regular students, and BD students in mainstream settings (MBD) with BD students in segregated settings (SBD). The same analyses were also carried out for the Preferred climate data. Finally, ANOVA results were used to compare the patterns of relationship between perceptions of Actual and Preferred climate for subgroups within the sample.

Cluster analysis.

Although ANOVA results provided no evidence that the Actual and Preferred perceptions of BD children differed significantly

from those of regular students, information gathered from hand scoring of protocols clearly indicated that the BD students could be partitioned into two subgroups which differed markedly in their perceptions of Preferred classroom climates. The existence of these subgroups was confirmed through cluster analysis which precisely replicated the memberships which had been already established. The results of this analysis enabled further statistical tests (ANOVAs and *t* tests) to be carried out, in order to (a) investigate the characteristics of the BD group, and (b) compare it with regular male students in the sample.

CHAPTER V

Results

The MCI Data

Means and Standard Deviations

Table 4a presents means and standard deviations of the Actual and Preferred responses to the MCI for the entire research population (N=303). These data confirm the relationships between Actual and Preferred climates reported for a study by Fraser (1986, p. 136), using the MCI (Short Form) with students in 22 Grade 3 classrooms in Sydney, Australia. The subjects in this study

> preferred more Cohesiveness, more Satisfaction, less Friction and less Competitiveness. The level of Difficulty perceived by students as being actually present was very similar to the level preferred by students.

Table 4a shows a very similar pattern for the Canadian sample, who also preferred more Cohesiveness and Satisfaction, less Competitiveness and Friction, and almost identical levels of Difficulty. These students also completed an additional scale (Actual and Preferred) showing a preference for greater levels of Order and Organization.

Table 4a

Means and Standard Deviations of MCI Scales

	Actual		Preferred	
Scale	Means	SD	Means	SD
ORD	10.19	3.09	13.47	2.52
COH	9.91	3.47	13.37	2.67
DIF*	13.04	2.15	13.30	2.00
COM*	8.61	3.14	12.37	3.27
FRI*	10.23	3.26	13.50	2.63
SAT	11.64	2.77	13.46	1.97

N=303

*Scoring reversed

Examination of the overall distributions of MCI scores, representing the sum of all the scales for 303 subjects, shows that, for both Actual and Preferred scales, they closely approximate a normal curve (see Figs. 1 and 2). The data are, therefore, well suited to analysis by parametric methods.

Internal Consistency

Table 4b reports the internal consistency statistics for Actual and Preferred climate scales using Hoyt's (1960) estimate of test reliability. These data, in general, indicate that the reliability of the adapted MCI, including the additional ORD scale, is comparable to the reliability of the five-scale MCI (Short Form), as measured by Fraser (1986) (see Table 2).

Table 5 compares internal consistency data from the present study with data from research conducted by Fraser and O'Brien (1985) with a sample of 758 Grade 3 students in Australia. These data indicate that, when compared with the Australian normative study, the Canadian sample has satisfactory reliabilities. With respect to the Actual scales, reliability reported for the new scale, Order and Organization (ORD), is stronger than that

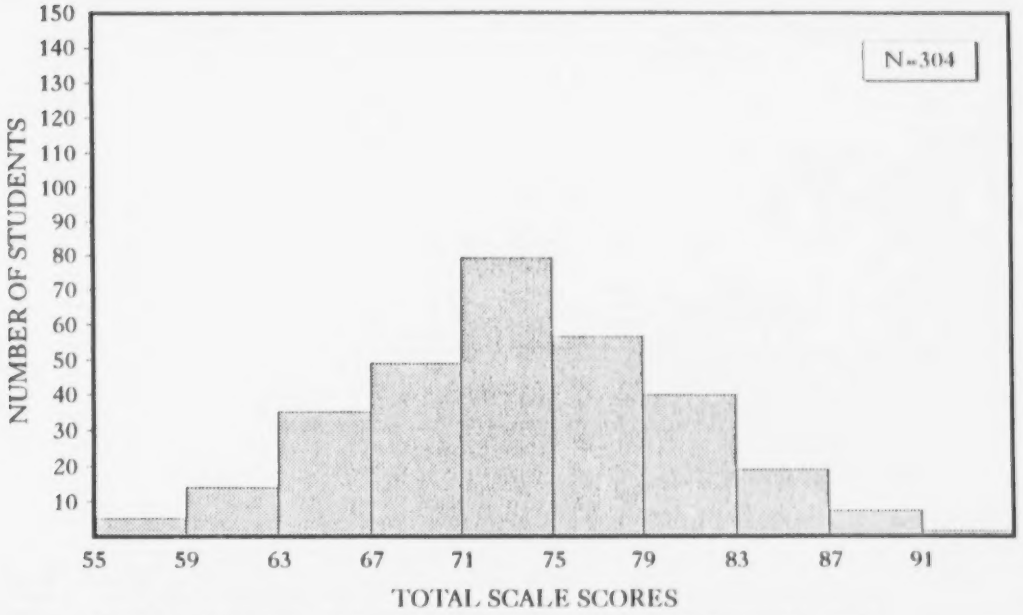

Figure 1. Distribution of summed scale scores (Actual) for total sample.

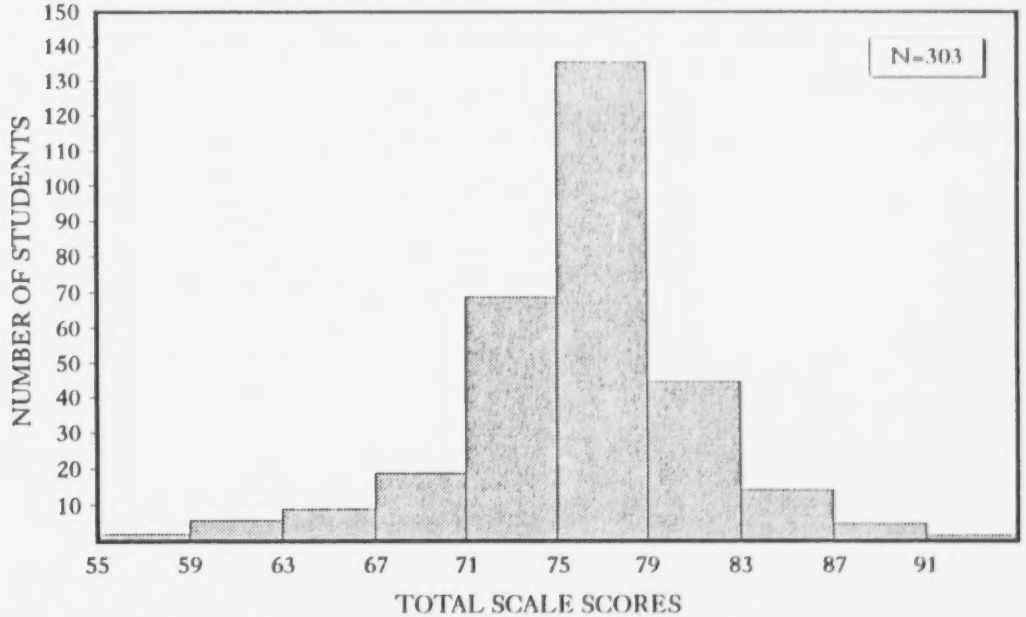

Figure 2. Distribution of summed scale scores (Preferred) for total sample.

Table 4b

Internal Consistency of MCI Actual and Preferred Scales

Scale	Actual	Preferred
ORD	0.66	0.77
COH	0.77	0.78
DIF	0.43	0.39
COM	0.69	0.80
FRI	0.72	0.80
SAT	0.64	0.48

N=303

reported for the least satisfactory of the Fraser & Fisher (1983) scales (DIF), and comparable to the value they obtained for SAT.

Internal consistency statistics obtained for the Canadian sample are generally higher on the Preferred scales than on the Actual scales. For example, although alphas reported for DIF and SAT are lower than Fraser and Fisher's, reliabilities for COH and FRI match those obtained for the larger study. It is also noted that the reliability (0.77) obtained for the new ORD scale approximates alphas obtained in the earlier study, in three of the scales. Moreover, the new ORD scale is shown to be more robust (Actual and Preferred) than two of the Fraser & Fisher (1983) MCI scales (DIF and SAT).

All the scales, with the exception of DIF (Actual and Preferred) and SAT (Preferred), show internal consistency alphas greater than 0.60 which, according to guidelines proposed by Leone et al. (1990), render them suitable for purposes of statistical analysis. The DIF and SAT scales (Actual and Preferred) were retained in spite of their relatively low alphas, in order to preserve the original Short Form test format. However caution is used in interpreting results relating to these two scales.

Table 5

Internal Consistencies of MCI (Fraser) and MCI (Adapted) (Actual and Preferred Scales)

Scale	Form	Sample	
		Australian[a]	Canadian[b]
ORD	Actual	-	0.66
	Preferred	-	0.77
COH	Actual	0.81	0.77
	Preferred	0.78	0.78
DIF	Actual	0.58	0.43
	Preferred	0.60	0.39
COM	Actual	0.81	0.69
	Preferred	0.78	0.80
FRI	Actual	0.78	0.72
	Preferred	0.82	0.80
SAT	Actual	0.68	0.64
	Preferred	0.75	0.48

[a] N=758

[b] N=303

Scale Intercorrelations

Table 6 presents intercorrelations for MCI Actual scales. Interscale correlations are below 0.50, except for FRI and SAT, but even here they account for less than 30% of the variance. For analytical purposes, then, the scales may be treated as independent of one another. The correlations between scales are in directions that would be anticipated. Friction is positively associated with Difficulty and Competitiveness, and negatively with Order and Organization and Cohesiveness. Satisfaction is positively associated with Order and Organization and Cohesiveness, and negatively with Difficulty and Competitiveness. These results reflect the theoretical assumption of classroom climate questionnaires that satisfaction should be a classroom goal, both for its intrinsic worth and because of its probable correlation with achievement, and that the means for realising this lies in increasing perceived order and cohesiveness and reducing perceived difficulty, competition, and friction.

Table 7 presents interscale correlations for Preferred climate scales. These data show that intercorrelations for MCI Preferred scales are higher than those for the Actual scales. However, the two patterns of correlation are very similar. There

Table 6

Intercorrelations of MCI Actual Scales

Scale	ORD	COH	DIF	COM	FRI	SAT
ORD	1.00	0.18*	-0.22**	-0.27**	-0.49**	0.38**
COH	-	1.00	-0.20**	-0.18*	-0.32**	0.44**
DIF	-	-	1.00	0.19**	0.32**	-0.34**
COM	-	-	-	1.00	0.47**	-0.35**
FRI	-	-	-	-	1.00	-0.53**
SAT	-	-	-	-	-	1.00

* $p < .001$

** $p < .0001$

$N = 303$

Table 7

Intercorrelations of MCI Preferred Scales

Scale	ORD	COH	DIF	COM	FRI	SAT
ORD	1.00	0.42**	-0.30**	-0.53**	-0.62**	0.51**
COH	-	1.00	-0.29**	-0.40**	-0.49**	0.47**
DIF	-	-	1.00	0.35**	0.31**	-0.33**
COM	-	-	-	1.00	0.69**	-0.50**
FRI	-	-	-	-	1.00	-0.57**
SAT	-	-	-	-	-	1.00

** p <.0001

N=303

are, for example, high levels of positive association (0.51, 0.47) between Satisfaction and Order and Organization and Satisfaction and Cohesiveness. On the other hand, negative correlations (-0.33. -0.50, -0.57) are found between Satisfaction and Difficulty, Satisfaction and Competitiveness, and Satisfaction and Friction. There is a high positive correlation between Friction and Competitiveness, and a high negative one between Friction and Order. In general, however, the Preferred scales can also be treated as independent of one another, since even in the case of the highest correlation (COM with FRI), less than 50% of the variance is accounted for.

Discussion

Statistical analysis establishes that the MCI data are normally distributed, and that reliability measures calculated for MCI scales, except for Difficulty (Actual and Preferred) and Satisfaction (Preferred) are satisfactory. Examination of intercorrelations of the Actual scales shows that relationships are in the direction that classroom climate theory would predict and that, though all 15 correlations are significant at least at the .001 level, they are not so high as to invalidate the assumption of the MCI that they can be treated as independent of one another.

Correlations between Preferred scales are substantially higher than those between Actual scales. This could be regarded as an indication that third to sixth grade children's implicit model of the classroom resembles that hypothesized by classroom climate researchers. This anticipates that, in the ideal situation, strong and consistent relationships exist between Order and Organization, Cohesiveness, Competitiveness, Friction, Satisfaction and Difficulty. Compared to the Actual scales, responses on the Preferred scales show higher mean scores for Order and Organization and Satisfaction, and lower mean scores for Competitiveness and Friction. In every case except one (Competitiveness), standard deviations are lower, showing greater agreement about Preferred than about Actual climates (see Table 3).

The students' model of the Preferred classroom climate appears to embody positive relationships between satisfaction and order and cohesion, and negative relationships between satisfaction and competition and friction. It must be supposed, however, that, when experience of the Actual classroom is reported, these relationships are attenuated by the idiosyncracies of individual teachers and settings (except for COM, standard deviations for Actual responses are higher than those for Preferred responses (see Table 3)). These findings

from analyses performed on MCI data derived from the total sample (N=303) confirm the picture presented in the bulk of the classroom climate literature. Students appear to envisage an 'ideal' classroom which represents the kind of climate which educators would see as 'progressive' and therefore could form a goal for intervention. It has also been suggested (Fraser, 1986) that such climates are conducive to improved educational performance. However, it was not possible to collect achievement data in the present study to test this claim of classroom climate theory.

Testing of Hypotheses Using Predetermined Categories

The first stage of hypothesis testing is based upon categories already built into the data collection: BD/regular students, boys/girls, and mainstreamed/segregated BD students.

Hypothesis 1

The Actual classroom climate perceptions of BD students in Grades 3 to 6 are not significantly different from those of their regular peers.

As already demonstrated, the BD population in Edmonton schools consists almost entirely of boys. In the present sample, the BD group, as originally constituted, was composed of 46 boys and only 1 girl. Therefore, in order to arrive at an appropriate testing of Hypothesis 1, it needs to be established whether significant differences exist between the classroom climate perceptions of boys (n=173) and girls (n=130). If these exist, it cannot be assumed that differences between BD and regular children are due solely to characteristics relating to the BD/regular variable. Sex differences were examined, for each of the six scale scores, by means of analysis of variance. The results are presented in Table 8. These data suggest that, for purposes of testing Hypothesis 1, sex differences can be ignored. Testing was therefore carried out by means of analysis of variance comparing Actual climate scores of BD children (n=46) with scores of all other children (n=257). The results of this analysis are shown in Table 9. These data reveal no significant differences in perceptions of classroom climate between BD and regular children. However, some BD children were enrolled in regular classrooms and some in special classes. Therefore, it could be the case that the similarity in means between the two groups is only apparent, and that the overall BD mean masks differences between mainstreamed BD (MBD) and segregated BD (SBD) subgroups. Table 10 examines this possibility.

Table 8

Differences Between MCI Actual Perceptions of Boys and Girls

Scale	Mean	SD	Mean	SD	F-Ratio	Sig.
	Boys		Girls		(df=302)	
ORD	10.09	3.06	10.43	3.14	1.24	n.s.
COH	9.86	3.53	9.99	3.40	0.10	n.s.
DIF*	12.90	2.20	13.23	2.08	1.86	n.s.
COM*	8.48	3.00	8.77	3.31	0.64	n.s.
FRI*	9.94	3.33	10.59	3.12	2.96	n.s.
SAT	11.40	2.73	11.95	2.80	2.96	n.s.

Boys: n=173

Girls: n=130

*Scoring reversed

Table 9

Differences Between MCI Actual Perceptions of BD and Regular Students

Scale	Mean BD	SD	Mean Regular	SD	F-Ratio (df=302)	Sig.
ORD	9.81	3.25	10.27	3.06	0.89	n.s.
COH	10.23	3.61	9.85	3.44	0.48	n.s.
DIF*	7.15	2.40	6.93	2.10	0.41	n.s.
COM*	11.43	2.98	11.39	3.17	0.01	n.s.
FRI*	10.23	3.27	9.70	3.25	1.09	n.s.
SAT	11.04	2.99	11.75	2.71	2.62	n.s.

BD: n=46

Regular: n=257

*Scoring reversed

Table 10

Differences Between MCI Actual Perceptions of Mainstreamed BD (MBD) and Segregated BD (SBD) Students

Scale	Mean	SD	Mean	SD	F-Ratio	Sig.
	MBD		SBD		(df=45)	
ORD	9.67	3.37	9.92	3.21	0.07	n.s.
COH	9.71	3.02	10.65	4.03	0.78	n.s.
DIF*	7.38	2.80	6.96	2.05	0.35	n.s.
COM*	11.29	2.70	11.54	3.23	0.08	n.s.
FRI*	10.19	3.37	10.27	3.24	0.01	n.s.
SAT	11.38	2.80	10.77	3.17	0.48	n.s.

MBD: n=20

SBD: n=26

*Scoring reversed

On the evidence of Table 10, which reports no significant F-ratios, we can assume that, for the purposes of testing Hypothesis 1, the MBD and SBD groups constitute a single population. Hypothesis 1 is therefore accepted. It is concluded that, as far as Actual classroom climate is concerned, the perceptions of the BD group as a whole are indistinguishable from those of the general population. Only on the measure of Satisfaction, where the value of the F-Ratio reaches 2.62 (see Table 9), could the existence of a difference be suspected. But even this is not significant at the 0.05 level.

Hypothesis 2

The Preferred classroom climate perceptions of BD students in Grades 3 to 6 are not significantly different from those of their regular peers.

As in the case of Hypothesis 1, Hypothesis 2 cannot be verified until it is established that no significant differences exist between scores obtained by boys and girls. Table 11 presents the data for the Preferred scales. In contrast to the finding of no significant differences in the Actual scale data, the Preferred scale results reveal highly significant differences between boys and girls. Girls show higher levels of preference

Table 11

Differences Between MCI Preferred Scales of Boys and Girls

Scale	Mean (Boys)	SD (Boys)	Mean (Girls)	SD (Girls)	F-Ratio (df=302)	Sig.
ORD	12.76	2.89	14.40	1.51	34.68	<.0001
COH	12.77	3.03	14.17	1.82	21.98	<.0001
DIF*	12.95	2.20	13.76	1.59	12.48	<.001
COM*	11.62	3.50	13.38	2.61	23.36	<.0001
FRI*	12.83	3.04	14.39	1.55	28.64	<.0001
SAT	12.96	2.13	14.14	1.49	29.24	<.0001

Boys: n=173

Girls: n=130

*Scoring reversed

for Order and Organization, Cohesiveness and Satisfaction, while boys prefer higher levels of Competitiveness and Friction. These findings concur with those of Owens and Straton (1980) who reported, on the basis of a study of 1,643 Grades 4 to 11 students in Sydney, Australia, that girls preferred more cooperation than boys, while boys preferred more competition than did girls. Since Owens and Straton used the Learning Preferences Scale-Students (LPSS) (Owens & Barnes, 1982), a direct comparison with MCI data is not possible. However, their results are consistent over grade levels, and the grades studied overlap with those covered by the present research.

Since it has been established that, in the case of Preferred scales, the results for girls are significantly different from those obtained for boys, it is necessary to reformulate Hypothesis 2 as Hypothesis 2.1, so that it refers, not to regular Grade 3 to 6 children, but to regular Grade 3 to 6 boys.

Hypothesis 2.1.

The Preferred classroom climate perceptions of BD students in Grades 3 to 6 are not significantly different from those of their regular male peers.

The data required to test this hypothesis, which are presented in Table 12, indicate that no significant difference exists on any Preferred scale between BD and regular boys and that Hypothesis 2.1 must be accepted. Once again, however, the possibility must be considered that differences may exist between BD children in mainstream and special classes, which are masked when the two groups are treated as a single population. Data comparing Preferred climate scale scores for the two groups are reported in Table 13. These allow us to exclude the possibility that the overall mean for BD boys masks differences between those enrolled in mainstream classes and those enrolled in special classes.

Hypothesis 3

The Actual classroom climate perceptions of mainstreamed BD (MBD) students in Grades 3 to 6 are not significantly different from those of segregated (SBD) students.

The data needed to test Hypothesis 3 have already been presented in Table 10. These indicate that no significant differences exist between the Actual classroom climate scores of mainstreamed and segregated BD students, and that Hypothesis 3 must, therefore, be accepted.

Table 12

Differences Between MCI Preferred Scales of BD Boys and Regular Boys

Scale	Mean BD	SD	Mean Regular	SD	F-Ratio (df=172)	Sig.
ORD	12.13	3.21	12.99	2.74	3.04	n.s.
COH	12.96	2.93	12.70	3.07	0.24	n.s.
DIF*	6.98	2.21	7.07	2.20	0.06	n.s.
COM*	8.04	3.57	8.50	3.49	0.58	n.s.
FRI*	7.28	3.43	7.13	2.91	0.09	n.s.
SAT	12.96	2.13	12.96	2.14	0.00	n.s.

BD Boys: n=46

Regular Boys: n=127

*Scoring reversed

Table 13

Differences Between MCI Preferred Scales of Mainstreamed BD (MBD) and Segregated BD (SBD) Students

Scale	Mean	SD	Mean	SD	F-Ratio	Sig.
	MBD		SBD		(df=46)	
ORD	11.43	3.67	12.81	2.68	2.21	n.s.
COH	12.86	3.32	13.12	2.60	0.09	n.s.
DIF*	7.10	2.55	6.88	1.88	0.11	n.s.
COM*	8.52	3.84	7.54	3.33	0.89	n.s.
FRI*	7.86	4.03	6.73	2.79	1.28	n.s.
SAT	13.10	2.14	12.85	2.11	0.16	n.s.

MBD Boys: n= 21[a]

SBD Boys: n= 26

*Scoring reversed

[a]Includes one BD girl.

Hypothesis 4

The Preferred classroom climate perceptions of mainstreamed BD (MBD) students in Grades 3 to 6 are not significantly different from those of segregated BD (SBD) students.

The data needed to test Hypothesis 4 have already been presented in Table 13. They reveal no significant differences between Preferred classroom climate scores of mainstreamed and segregated BD students. Hypothesis 4 is, therefore, accepted.

Hypothesis 5

The Preferred classroom climate perceptions of regular students in Grades 3 to 6 are not significantly different from their Actual perceptions.

The practical justification for classroom climate research has been that children achieve best in situations where the Actual classroom climate approximates the one that they would prefer, and that it is therefore useful to be able to identify

and measure discrepancies between Actual and Preferred climates. Fraser (1986, p. 165), for example, claims that

> ... the present promising findings suggest that actual-preferred congruence (or person-environment fit) at the class level could be as important as the nature of the actual classroom environment in predicting class achievement of important cognitive and affective aims.

Within this perspective, interventions to improve classroom environments, that is, to bring Actual climates closer to Preferred ones, raise technical problems, but not ethical ones. This is because research with normal school populations has invariably shown that students would like their classrooms to be changed in ways of which teachers and administrators would approve. Typically, students want more cohesion and satisfaction and less competition and friction. Following on research which has identified the extent to which classrooms depart from this ideal, interventions have been carried out to change climates in desired directions (Fraser, 1986).

Hypothesis 2 data revealed significant differences between boys and girls on the Preferred scale (see Table 11). Therefore, since Hypothesis 5 involves comparisons between Preferred and Actual scales, and Preferred results are shown to be sex dependent, Hypothesis 5 now needs to be reformulated as Hypotheses 5.1 and 5.2.

Hypothesis 5.1.

The Preferred classroom climate perceptions of regular boys in Grades 3 to 6 are not significantly different from their Actual perceptions.

The Actual and Preferred perceptions of students were examined for significant differences, using two-tailed *t* tests. The results for regular boys are shown in Table 14. These indicate that they prefer significantly more Order and Organization, Cohesiveness, and Satisfaction than they are actually currently experiencing in the classroom. The data also indicate that regular boys prefer to have significantly less Competitiveness and Friction in the classroom. On the Difficulty scale (which was found to be unreliable for inferential purposes) there was no significant difference between Actual and Preferred scales. In general, the results obtained for this group concur with findings reported by other researchers (Fraser, 1986). Hypothesis 5.1 is thus rejected.

Hypothesis 5.2.

The Preferred classroom climate data of Grades 3 to 6 girls are not significantly different from their Actual perceptions.

Table 14

Differences Between Actual and Preferred Classroom Climate Perceptions of Regular Boys

Scale	Means (Actual)	SD (Actual)	Means (Preferred)	SD (Preferred)	t-Value (df=126)	Sig.
ORD	10.12	2.98	12.99	2.74	9.42	<.001
COH	9.72	3.49	12.70	3.07	8.85	<.001
DIF*	12.91	2.11	12.93	2.20	0.10	n.s.
COM*	8.46	3.01	11.50	3.49	8.74	<.001
FRI*	10.02	3.36	12.87	2.91	8.78	<.001
SAT	11.57	2.63	12.96	2.14	5.28	<.001

Regular Boys: n=127

*Scoring reversed

Table 15 displays results comparing Actual and Preferred responses for girls in the study. The results show that girls prefer significantly more Order and Organization, Cohesiveness, and Satisfaction in their classrooms. The data also show that they prefer significantly less Difficulty, Competitiveness, and Friction than they actually experience. With the exception of the Difficulty scale, the patterns of results for boys and girls are similar. However, closer scrutiny of discrepancies between scale means for the two groups reveals that girls prefer comparatively more Order and Organization, Cohesiveness, and Satisfaction than do boys. They also prefer comparatively less Difficulty, Competitiveness, and Friction than do boys. Hypothesis 5.2 is thus rejected.

Hypothesis 6

The Preferred classroom climate perceptions of BD students in Grades 3 to 6 are not significantly different from their Actual perceptions.

BD students are identified as such because of their failure, as judged by observed behavior, to subscribe to classroom norms. Therefore, the supposition that they too want climates changed in directions to which commonly held philosophies of education

Table 15

Differences Between Actual and Preferred Classroom Climate Perceptions of Girls

Scale	Means Actual	SD	Means Preferred	SD	t-Value (df=130)	Sig.
ORD	10.41	3.16	14.40	1.51	13.66	<.001
COH	9.98	3.41	14.16	1.83	13.03	<.001
DIF*	13.23	2.09	13.76	1.60	2.63	<.05
COM*	8.75	3.32	13.37	2.61	13.48	<.001
FRI*	10.58	3.13	14.38	1.55	12.56	<.001
SAT	11.93	2.79	14.15	1.49	7.87	<.001

Girls: n=131

*Scoring reversed

would give approval needs to be tested. Table 16, which presents data comparing their Actual and Preferred responses, suggests that BD boys, like Regular boys, prefer significantly more Order and Organization, Cohesiveness, and Satisfaction in their classrooms. The findings also indicate that they prefer significantly less Competitiveness and Friction than they actually experience. Data from the Difficulty scale (which is less reliable than other scales) are nonsignificant. On the basis of those results, Hypothesis 6 is rejected.

When Actual/Preferred results for all three groups (n=127, n=131, n=46) are compared, the pattern of environment perceptions is similar. That is, the groups' experience of classroom climate, and the directions in which they want it changed are congruent. However, insofar as differences are to be found, they relate to the Preferred responses of girls. While regular and BD boys are comparable in the discrepancies between their actual and ideal environments, girls are different in that they express a preference for more of the 'positive' climate variables, while preferring less of the 'negative' climate traits.

Table 16

Differences Between Actual and Preferred Classroom Climate Perceptions of BD Students

Scale	Means Actual	SD	Means Preferred	SD	t-Value (df=45)	Sig.
ORD	9.78	3.28	12.13	3.21	4.00	<.001
COH	10.22	3.65	12.96	2.93	4.69	<.001
DIF*	12.85	2.42	13.02	2.21	0.42	n.s.
COM*	8.52	2.99	11.96	3.57	5.97	<.001
FRI*	9.74	3.30	12.72	3.43	4.37	<.001
SAT	10.96	2.97	12.96	2.13	4.69	<.001

BD Students: n=46

*Scoring reversed

Discussion

Testing of the research hypotheses, using categories present in the original data set, replicated the findings of previous classroom climate research, both for regular and BD populations. The existence of boy/girl differences on the Preferred scales, and therefore also on Actual/Preferred congruencies, was confirmed, as was the general preference for more Order and Organization, Cohesiveness, and Satisfaction, and less Competitiveness and Friction. Otherwise, the null hypotheses were accepted. BD students appeared to be highly comparable to other students on both Actual and Preferred climate scores, and to have the same pattern of differences between Actual and Preferred responses. BD students in mainstreamed settings did not differ from BD students in segregated settings, in either their Actual or their Preferred climate perceptions.

Thus, while it might have been anticipated that BD students would show up as different from regular students, since their designation as BD related to criteria based on their rejection of classroom norms, no indication emerged from the initial stage of hypothesis testing that either their Actual or their Preferred classroom climate perceptions were atypical.

Testing of Hypotheses Using Cluster Analysis

Results pointing to no significant differences between BD and regular students in terms of their perceptions of Preferred climates, or discrepancies between Actual and Preferred responses to the MCI, were unexpected. Both theoretical discussions of the nature of behavioral disorders and teacher reports of their experiences with these students suggest that BD children's perceptions of Preferred classroom environments would be likely to differ from those of regular students, and that they might exhibit unusual discrepancies between scores on Actual and Preferred scales. In such circumstances, it is necessary to consider whether the absence of measurable differences is due to lack of homogeneity within the population under study, which has the effect of masking them. The data, as collected, permitted the investigation of one possible source of within-group difference: enrollment in mainstream or special classes. But, as already noted (see Table 13), examination of this variable failed to show up differences within the BD sample. A further variable available for analysis was the grade in which students were enrolled. But no conclusions could be drawn about the effect of grade on Preferred climate perceptions, because the BD sample was too small to permit these analyses to be carried out. It was therefore necessary to consider whether

subgroups might exist which did not correspond with categorical data gathered in the research.

An indication that subgroups might exist within the BD sample appeared in the course of the hand scoring of protocols. Contrary to expectation, the responses on the Preferred scales of some BD subjects (n=31), were congruent with the profile of the 'model' student within classroom climate theory, in terms of their preference for order and organization and cohesiveness, and their rejection of competition and friction. In sharp contrast, the responses of other BD students (n=15) were seen to fit the stereotype of the behaviorally disordered child and depicted the Preferred classroom climate as disordered, competitive, and characterized by friction. Two students stood out as being extreme on these variables, and were considered as a separate subgroup. Thus, three discrete subgroups were initially identified within the BD sample (n=31, n=13, n=2).

Further analysis was therefore undertaken to determine whether the three subgroups, identified through hand scoring of protocols, could be replicated using statistical procedures. For this purpose, the QUICK CLUSTER algorithm within SPSS-X (SPSS Inc., 1988) was adopted. This program, which is suitable for any sample size, and uses squared Euclidean distance which

equally weights all variables, was selected because of its suitability for providing algorithmic confirmation of clusters which are already known, or suspected, to exist.

Scores on the six Preferred scales for all BD students (n=46) were entered into the QUICK CLUSTER program, which was set to produce a three-cluster solution using the default procedure whereby it selects "k cases with well-separated, nonmissing values as initial centers, where k is the number of clusters (requested)" (SPSS Inc., 1988, p. 841). Table 17 presents the final clusters yielded by the program, after reassignment of cases following the calculation of final cluster centers. With the exception of five subjects, the clusters replicated the three discrete groups already identified through examination of the BD protocols.

It was now possible to make further comparisons between the climate perceptions of BD and regular students, using clusters within the BD group. As a preliminary step, the cluster consisting of only two students was amalgamated with the cluster of n=13, since no valid comparisons could be made using a group of two, whose profiles, though more extreme, were comparable to those found in the n=13 cluster. For discussion purposes,

Table 17

Final Cluster Centers for BD Students Classified in QUICK CLUSTER Analysis (Based on Means for Subjects)

Scale	Means Cluster 1	Cluster 2	Cluster 3
ORD	13.71	9.31	6.00
COH	13.58	12.69	5.00
DIF*	13.48	12.85	7.00
COM*	14.16	7.77	5.00
FRI*	14.58	9.46	5.00
SAT	13.64	11.77	10.00
n	31	13	2

BD Boys: *n* = 46

*Scoring reversed

the two clusters used in further investigations of differences between BD and regular populations are referred to as BD-1 (n=31) and BD-2 (n=15).

Reformulation of Hypotheses

Hypothesis 1

It is now possible, in the light of the cluster analysis, to reformulate Hypothesis 1 as Hypotheses 1.1 and 1.2. In addition to considering the division of the BD population into two subgroups (BD-1 and BD-2), these revised hypotheses also use regular boys as a comparison group, since, in the light of analyses carried out after the original testing of Hypothesis 1, the existence of sex differences must always be suspected.

Hypothesis 1.1.

The Actual classroom climate perceptions of BD-1 students in Grades 3 to 6 are not significantly different from those of regular boys.

Hypothesis 1.2.

The Actual classroom climate perceptions of BD-2 students in Grades 3 to 6 are not significantly different from those of regular boys.

Table 18 presents the data required to test Hypothesis 1.1. It shows that no significant differences exist on any of the Actual classroom climate scales between BD-1 students and regular boys. This hypothesis is therefore accepted.

Data relating to Hypothesis 1.2 are displayed in Table 19. They reveal no significant differences between BD-2 students and regular boys. This hypothesis is also accepted.

Reformulation of Hypothesis 1 does not modify the original conclusion that BD students are quite similar to regular students in their perceptions of Actual classroom climate.

Hypothesis 2.1.

This is now reformulated as Hypotheses 2.1.1 and 2.1.2.

Table 18

Differences Between Actual Climate Perceptions of BD-1 and Regular Boys

Scale	Means BD-1	SD	Means Regular	SD	F-Ratio (df=157)	Sig.
ORD	9.77	3.29	10.12	2.98	.32	n.s.
COH	10.19	3.56	9.72	3.49	.45	n.s.
DIF*	12.87	2.63	12.91	2.11	.01	n.s.
COM*	9.06	2.94	8.46	3.01	1.00	n.s.
FRI*	9.55	3.54	10.02	3.35	.47	n.s.
SAT	11.19	3.03	11.57	2.63	.47	n.s.

BD-1 Boys: n=31

Regular Boys: n=127

*Scoring reversed

Table 19

Differences Between Actual Climate Perceptions of BD-2 and Regular Boys

Scale	Means	SD	Means	SD	F-Ratio	Sig.
	BD-2		Regular		(df=141)	
ORD	9.80	3.36	10.12	2.98	.15	n.s.
COH	10.27	3.94	9.72	3.49	.32	n.s.
DIF*	12.80	2.01	12.91	2.11	.03	n.s.
COM*	7.40	2.85	8.46	3.01	1.70	n.s.
FRI*	10.13	2.80	10.02	3.35	.02	n.s.
SAT	10.47	2.88	11.57	2.63	2.30	n.s.

BD-2 Boys: n=15

Regular Boys: n=127

*Scoring reversed

Hypothesis 2.1.1.

The Preferred classroom climate perceptions of BD-1 students in Grades 3 to 6 are not significantly different from those of regular boys.

Hypothesis 2.1.2

The Preferred classroom climate perceptions of BD-2 students in Grades 3 to 6 are not significantly different from those of regular boys.

Table 20 presents the data required to test Hypothesis 2.1.1. The BD-1 students differ from the population of regular boys in that they prefer significantly less competition and friction. In other respects, they are not significantly different from regular boys. While BD boys of this type seem to share some of the characteristics of regular boys, there could be an indication here that they are afraid of the competition and friction associated with classrooms, and this could perhaps contribute to the deviant behaviors which led to a classification of behavior disordered. Hypothesis 2.1.1 is thus rejected for the Competitiveness and Friction scales.

Table 20

Differences Between Preferred Climate Perceptions of BD-1 and Regular Boys

Scale	Means BD-1	SD	Means Regular	SD	F-Ratio (df=157)	Sig.
ORD	13.71	2.10	12.99	2.74	1.86	n.s.
COH	13.58	2.53	12.70	3.07	2.18	n.s.
DIF*	13.48	1.77	12.93	2.20	1.70	n.s.
COM*	14.16	1.53	11.50	3.49	17.24	<.001
FRI*	14.58	0.96	12.87	2.91	10.37	<.001
SAT	13.65	1.96	12.96	2.14	2.63	n.s.

BD-1 Boys: n=31

Regular Boys: n=127

*Scoring reversed

Table 21 presents corresponding data for Hypothesis 2.1.2. BD-2 boys are significantly different from regular boys on four out of six scales. What distinguishes them most is their rejection of order, and their preference for competition and friction. It could be conjectured, therefore, that only in the case of this group do deviant behaviors derive from antipathy to order, and desire for competition and friction commonly attributed to BD students. In contrast, the behaviors of BD-1 boys may, on this evidence, be provoked by an aversion to competition and friction. Hypothesis 2.1.2 is therefore rejected for Order and Organization, Competitiveness and Friction.

Hypotheses 3 and 4.

These hypotheses, which referred to possible differences between BD students in mainstreamed and segregated settings, could not be reformulated since division of the BD sample by setting would have produced numbers which were too small for the purposes of statistical testing. However, Tables 22 and 23, comparing the Actual and Preferred responses of the two clusters, present data which show that while both groups do not differ significantly in how they experience the classroom climate, BD-2 boys prefer significantly less order and cohesion, and more competition and friction than do their BD-1 peers.

Table 21

Differences Between Preferred Climate Perceptions of BD-2 and Regular Boys

Scale	Means	SD	Means	SD	F-Ratio	Sig.
	BD-2		Regular		(df=141)	
ORD	8.86	2.59	12.99	2.74	30.77	<.0001
COH	11.67	3.35	12.70	3.07	1.49	n.s.
DIF*	12.07	2.74	12.93	2.20	1.95	n.s.
COM*	7.40	1.72	11.50	3.49	20.03	<.0001
FRI*	8.87	3.50	12.87	2.91	24.41	<.0001
SAT	11.53	1.77	12.96	2.14	6.17	<.05

BD-2 Boys: n=15

Regular Boys: n=127

*Scoring reversed

Table 22

Differences Between Actual Classroom Climate Perceptions of BD-1 and BD-2 Students

Scale	Means BD-1	SD	Means BD-2	SD	t-Value (df=45)	Sig.
ORD	9.77	3.29	9.80	3.36	0.00	n.s.
COH	10.19	3.56	10.27	3.94	0.00	n.s.
DIF*	12.87	2.63	12.80	2.01	0.01	n.s.
COM*	9.06	2.94	7.40	2.85	3.30	n.s.
FRI*	9.55	3.54	10.13	2.80	0.31	n.s.
SAT	11.19	3.03	10.47	2.88	0.60	n.s.

BD-1: n=31

BD-2: n=15

*Scoring reversed

Table 23

Differences Between Preferred Classroom Climate Perceptions of BD-1 and BD-2 Students

Scale	Means BD-1	SD BD-1	Means BD-2	SD BD-2	t-Value (df=45)	Sig.
ORD	13.71	2.10	8.86	2.59	46.14	<.0001
COH	13.58	2.53	11.67	3.53	4.67	<.05
DIF*	13.48	1.77	12.07	2.74	4.50	<.05
COM*	14.16	1.53	7.40	1.72	181.88	<.0001
FRI*	14.58	0.96	8.87	3.50	72.87	<.0001
SAT	13.64	1.96	11.53	1.77	12.49	<.001

BD-1: n=31

BD-2: n=15

*Scoring reversed

Hypothesis 5

This hypothesis is not reformulated since it refers to regular students, and not BD students.

Hypothesis 6

Hypothesis 6 is reformulated as Hypothesis 6.1 and Hypothesis 6.2.

Hypothesis 6.1.

The Preferred classroom climate perceptions of BD-1 students in Grades 3 to 6 are not significantly different from their Actual perceptions.

Hypothesis 6.2.

The Preferred classroom climate perceptions of BD-2 students in Grades 3 to 6 are not significantly different from their Actual perceptions.

Table 24 presents the data comparing Actual and Preferred responses of BD-1 students. This BD subgroup (n=31) prefers significantly more Order and Organization, Cohesiveness, and Satisfaction, while preferring significantly less Competitiveness and Friction. This pattern of results is congruent with that obtained for both regular boys and the entire BD group. Hypothesis 6.1 is thus rejected for all scales except Difficulty.

Table 25 presents corresponding data for BD-2 students. However, repetition of the same analyses for this subgroup (n=15) reveals a totally different picture. This table shows that there are no significant differences between the Actual and Preferred scales, on any of the six variables. These contrasting findings for BD-2 students, as opposed to BD-1 students are not attributable to overrepresentation of BD-2 boys in segregated settings, where they do not share the same environment as regular students. In fact, only 40% of BD-2 boys (6 out of 15) were in special classes, as opposed to 65% of BD-1 boys (20 out of 31). Thus, setting aside Difficulty, because of its unsatisfactory reliability, Hypothesis 6.2 must be accepted for all climate scales.

Table 24

Differences Between Actual and Preferred Classroom Climate Perceptions of BD-1 Students

Scale	Means Actual	SD Actual	Means Preferred	SD Preferred	t-Value (df=30)	Sig.
ORD	9.77	3.29	13.71	2.10	6.75	<.001
COH	10.19	3.56	13.58	2.53	5.00	<.001
DIF*	12.87	2.63	13.48	1.77	1.19	n.s.
COM*	9.06	2.94	14.16	1.53	8.60	<.001
FRI*	9.55	3.54	14.58	0.96	7.61	<.001
SAT	11.19	3.03	13.64	1.96	4.62	<.001

BD-1: n=31

*Scoring reversed

Table 25

Differences Between Actual and Preferred Classroom Climate Perceptions of BD-2 Students

Scale	Means (Actual)	SD (Actual)	Means (Preferred)	SD (Preferred)	t-Value (df=14)	Sig.
ORD	9.80	3.36	8.86	2.59	-1.08	n.s.
COH	10.27	3.94	11.67	3.35	1.31	n.s.
DIF*	12.80	2.01	12.07	2.74	-1.09	n.s.
COM*	7.40	2.85	7.40	1.72	0.00	n.s.
FRI*	10.13	2.80	8.87	3.50	-1.48	n.s.
SAT	10.47	2.88	11.53	1.77	1.59	n.s.

BD-2: n=15

*Scoring reversed

Discussion

Use of cluster analysis indicates that conclusions from the initial stage of hypothesis testing are open to doubt. It appears that similarities between BD and regular populations may result from some bimodality in the classroom climate perceptions of BD students. While the BD-1 group is, if anything, closer than regular boys (see Tables 14 and 24) to the expectations of classroom climate theorists in terms of differences between their Actual and Preferred responses, the BD-2 subgroup appears to differ markedly from regular, and other BD, students in: (a) their Preferred responses, and (b) the discrepancies between their Actual and Preferred responses (see Table 23). While other groups prefer significantly more Order and Organization, Cohesiveness, and Satisfaction, and significantly less Competitiveness and Friction, for the BD-2 students there is no significant difference on any scale between what they experience and what they prefer. Inspection of means, however, indicates that, contrary to the expectations of classroom climate theorists, they would prefer less Order and Organization, and more Friction.

CHAPTER VI

Discussion

Introduction

Classroom environment theory has proven to be a useful construct in modifying psychosocial environments for students. Although instruments have been developed to examine the perceptions of regular populations, with the exception of two studies (Leone, Luttig, Zlotlow & Trickett, 1990; Trickett, Leone, Fink & Braaten, 1993), the environment perceptions of subgroups (other than male/female) in elementary classrooms have not been explored. Although the Leone et al. and Trickett at al. studies targeted the environment responses of BD students, none of those children was under age 10, and BD children in regular classrooms were not studied. To date, the MCI has not been used by other researchers to collect data with behaviorally disordered students.

The applicability of classroom environment instruments to BD students may be limited since, by definition, those students do not subscribe to classroom norms. The purpose of this research, then, was to explore if, and how, the classroom

climate responses of BD children were different from those of regular students. This study extended the research on BD students and on classroom climate by (a) adapting a climate inventory for application with elementary children, and (b) testing a number of hypotheses concerning the relationship between the environment perceptions of BD students and those of their regular peers. An adapted form of the My Class Inventory (Short Form) (Fraser & Fisher, 1983) was administered to explore the responses of a sample of 303 elementary students between Grades 3 and 6. The sample included 46 BD boys who were enrolled in both segregated and mainstream settings.

The following discussion considers the major results emerging from the design and administration of the study, and the testing of the research hypotheses. Research findings are summarized, and the limitations of the study discussed. Implications for educational practice are presented, and the direction of future research explored.

Summary of Results

Adaptation of the My Class Inventory (Short Form).

Because the Fraser & Fisher (1983) Short Form does not

include a scale to reflect Moos's (1979) System Maintenance and System Change dimension, the MCI was adapted for administration with the Canadian sample. Thus, an additional scale, Order and Organization, which was modified from the CES Short Form (Fraser & Fisher, 1983), became the sixth scale on both Actual and Preferred forms of the MCI.

Statistical analysis establishes that MCI data are normally distributed, and that internal consistency measures calculated for individual scales, with the exception of Difficulty (Actual and Preferred) and Satisfaction (Preferred) are satisfactory. The data indicate that alpha reliability of the adapted MCI is comparable to that of the five-scale instrument, as measured by Fraser and O' Brien (1985) with Grade 3 students in Australia. According to the guidelines proposed by Leone et al. (1990), internal consistency statistics for the adapted MCI are satisfactory.

In general, alphas obtained for the Preferred scale exceed those obtained for Actual. The new Order and Organization scale, with alphas of 0.66 (Actual) and 0.77 (Preferred), has satisfactory reliability. Comparison with the Australian data shows that Order and Organization equals (SAT) and exceeds (DIF) alphas obtained on the Actual scale. On Preferred, the new scale

matches reliability for COH and COM, and is more robust than DIF and SAT. Despite relatively low alphas, the Difficulty and Satisfaction (Preferred) scales were retained in order to preserve an intact form of the Fraser & Fisher questionnaire. However, significant research findings related to those scales are not considered in this discussion.

Examination of intercorrelations of MCI scales shows that relationships are in the direction that classroom climate theory would predict. Correlations between Preferred scales are substantially higher than those obtained for the Actual scales. Statistics, in general, are more robust for the Preferred scales, including the new adapted scale, Order and Organization. These findings, based on MCI data derived from the total Canadian sample (N=303), indicate that the adapted MCI has satisfactory reliability for examining the perceptions of classroom climate with elementary students.

Testing of hypotheses using predetermined categories.

Research findings obtained from the first stage of hypothesis testing reveal that there are no significant differences between the Actual climate perceptions of regular and, either mainstreamed or segregated, BD students. Those

results are incongruent with the data reported by Trickett et al. (1993) for a sample of adolescent BD students, who perceived the classroom as being less orderly and less organized than did non-BD students in regular settings. Data from this study also indicate that BD boys do not differ significantly from regular boys in what they hope for in the classroom. Nor do mainstreamed BD boys differ, either in their experiences or their preferences, from their segregated peers. The data thus support null Hypotheses 1, 2.1, 3, and 4.

Preferred scale results show highly significant differences between boy/girl responses. The data show that girls prefer significantly more order and cohesion, while boys prefer higher levels of competition and friction. Those findings concur with gender differences reported by other researchers (e.g., Owens & Straton, 1980). Examination of differences between the preferences of BD and regular boys reveals no significant differences on any of the six climate variables.

Results for examining possible discrepancies between the Actual and Preferred responses of regular boys indicate that they prefer significantly more order and cohesion, and less competition and friction, than they are currently experiencing.

Those findings concur with results obtained from other classroom environment studies (Fraser, 1986).

Actual/Preferred discrepancy data obtained for girls suggest that, like regular boys, they prefer more order and cohesion, but less competition and friction. While the pattern of results is similar for both male and female students, those discrepancies differ in that girls wish for more of the 'positive' classroom traits, and less of the 'negative' characteristics. Inspection of the BD results points to a similar pattern of preferences. In the absence of supporting data, then, Hypotheses 5 and 6 are rejected.

While it might have been anticipated that BD students would show up as different from their regular peers, the initial stage of hypothesis testing did not identify them as being significantly different in any of their environment perceptions. However, during hand scoring of protocols, there were indications that subgroups might exist within the BD sample. For example, contrary to expectation, the environment preferences of approximately two thirds of the BD group seemed congruent with the profile of the 'model' student envisaged by classroom climate theory. On the other hand, the responses of approximately one third of the BD sample appeared to fit the stereotype of the

behaviorally disordered child. Thus, further analysis was undertaken to determine whether these subgroups could be confirmed through statistical methods. A cluster analysis procedure was subsequently adopted to determine the existence of BD subtypes. Results from the second stage of data analysis are presented.

Testing of hypotheses using cluster analysis.

The clusters obtained through statistical methods closely replicated those identified through handscoring procedures. The two main clusters finally identified and selected for further examination were subsequently referred to as BD-1 (n=31) and BD-2 (n=15). Further hypotheses (1, 2, and 6) were then formulated to explore possible classroom climate differences between BD subgroups and other male groups.

Results indicate that neither BD-1 nor BD-2 boys differ significantly from regular boys in how they experience the classroom climate. These findings support Hypotheses 1.1 and 1.2. No significant difference is noted between the Actual and Preferred responses of BD-2 boys, thus confirming the assumptions of Hypothesis 6.2.

When the classroom environment preferences of the BD-1 subgroup are compared with those of regular boys, they differ in that BD-1 boys hope for significantly less competition and friction. Further comparison with regular boys indicates that BD-2 students differ significantly in their rejection of order, and their preference for more competition and friction. Hypothesis 2.1.1 is thus rejected for the Competitiveness and Friction scales, and Hypothesis 2.1.2 rejected for Order and Organization, Competitiveness, and Friction.

Actual/Preferred discrepancies obtained for the BD-1 boys reveal that they prefer significantly more order and cohesion, and less competition and friction than they actually experience in the classroom. Hypothesis 6.1 is thus rejected for Order and Organization, Cohesion, Competitiveness, and Friction. This pattern of results is congruent with that noted for both regular boys and the entire BD sample. However, corresponding data for the BD-2 cluster reveal a completely different picture. That is, no significant differences exist between their actual experiences and preferences on any of the climate characteristics explored. When the preferences of the two subgroups are compared, BD-2 boys prefer significantly less order and cohesion, while hoping for significantly more competition and friction.

While the BD-1 group is, if anything, closer than regular boys to the expectations of classroom environment theorists with respect to their overall responses, the BD-2 subgroup differs markedly from regular, and other BD, boys in (a) the environment characteristics they hope for in the classroom, and (b) the discrepancies between what they actually experience and what they hope for. Thus, their expressed preference for a classroom environment characterized by increased competition and friction, and less order and cohesion, calls into question the relevance of classroom environment research for a student subgroup exhibiting an atypical profile such as this. However, the limitations of this study need to be addressed before inferences and implications can be made regarding this sample of behaviorally disordered students.

Limitations of the Study

Wiersma (1986) observes that while a quasi-experimental research design "can make valuable contributions" to research, caution is advised regarding overgeneralization due to "lack of random assignment" (p. 139). Therefore, since specific groups were targeted, and a somewhat limited pool of subjects was available for study, this entire research sample is not necessarily representative of Edmonton Public Schools. However,

a sample size of 303 students, including a total of 46 identified BD students, might offset some of the limitations imposed by the research design.

Although the MCI has been used extensively in classroom climate studies, and results are widely reported in the literature (Fraser, 1986), the 25-item Short Form is less reliable than the original 38-item long form. For the purposes of this discussion, however, the adapted 30-item instrument may be considered more reliable than the Fraser & Fisher format.

Although the BD group constituted a large enough sample for statistical analysis, it did not allow for grade comparisons to be made. Subcluster size for BD-2 (n=15) is also problematic in terms of what can be concluded from data for such a small group. Although they account for 33% of the total BD group, comparisons between the two clusters are made with some reservation. Ideally, it would have been more informative to conduct a similar cluster analysis within the regular male population, to determine whether a similar subgroup might emerge. However, during hand-scoring a possible subgroup did not appear to stand out, as it did with the BD group.

The results reported for BD students would have been considerably enhanced had additional information been available regarding BD children. However, repeated requests to EPSB psychologists for further clinical data regarding 13 of the 15 BD-2 boys went unacknowledged. Moreover, only three of the teachers enrolling BD-2 students provided achievement data in core subjects areas such as Reading, Spelling, and Arithmetic.

Since the most important results to emerge from this study involved the environment perceptions of BD subgroups, discussion is focused around implications for classroom climate theory and practice. However, given the limitations imposed by research design, instrumentation, sample size (with subgroups), and lack of additional data on the most deviant students, the following conclusions should be regarded as both tentative and speculative.

Application of the MCI with BD Students

Identification.

Results obtained from this study suggest that classroom environment instruments may be potentially useful tools for identifying subtypes within current BD classifications through comparison of climate preferences. Current identification

procedures, it seems, are not sensitive to distinguishing between subtypes of behaviorally disordered children. For example, the most deviant children in the entire BD sample were enrolled in regular classrooms, while many others with a BD-1 profile were enrolled in segregated classes. The question must be raised, then: Are current generic screening/diagnostic practices for BD children adequate? After all, the 46 boys in this sample all met EPBS criteria for severe emotional disturbance, and yet, according to the MCI data, two thirds of those children were remarkably similar to regular boys in terms of their global perceptions of the classroom environment.

While Trickett and colleagues (1993) have recently adapted the Actual scale of the CES for application with BD groups, their research sample did not include BD children (a) under age 10, or (b) enrolled in regular classrooms. The MCI, however, is suitable for administration at a younger (primary) level, where early identification is a critical component of behavioral intervention. The questionnaire could be administered by teachers and/or school psychologists, for rapid screening of students exhibiting deviant behavior. Subgroups could be screened during group testing, without being singled out for individual attention. This might be an effective method of obtaining additional data upon which interventions could be based.

The results from this study support the collective conventional wisdom of teachers who frequently observe that BD children are not a homogeneous group. This conclusion might explain why those children continue to challenge teachers' resources, insofar as they do not respond to a generic set of interventions or strategies. The notion of subtypes existing among BD populations invites comparisons between other high-profile subgroups in the literature. For example, the Attention Deficit Disorder (ADD) debate is well known to clinicians struggling with existing classifications. However, DSM-IV (American Psychiatric Association, in press) is expected to reconfirm the existence of ADD subtypes via categorical criteria. In the meantime, the literature (Barkley, 1991; Fiore, Becker & Nero, 1993; McBurnett, Lahey & Pfiffner, 1993) is replete with information regarding implications for educational practices. While the most severely affected (ADHD) subgroup is treated with a combination of psychostimulant medication and modified behavioral practices, the nonhyperactive group (with undifferentiated ADD) is considered 'treatable' with a carefully selected set of behavioral strategies.

The same kind of comparison might be made for diabetic patients, who in the past, were treated based on a generic approach to diagnosis. Today, however, medical diagnosis has

advanced beyond this former practice. Modern methods are now fine-tuned to assign patients to two types: Type I (diet controlled) and Type II (insulin dependent). Although both groups meet categorical criteria for a blanket diagnosis, additional tests add refinement of technique so that appropriate intervention can be accessed. Perhaps a similar refinement of diagnostic criteria for BD subtypes will come about when a variety of assessment instruments and techniques are utilized by professionals.

Classroom environment research may well have something to contribute to the sophistication of identification, and thus, intervention, procedures for BD children. But if the findings of this study are to be considered at all, homogeneity among children already formally identified as behaviorally disordered should not be assumed.

Classroom placement and intervention.

What can be concluded from this research with respect to the classroom placement of behaviorally disordered children? Should behaviorally pathology be considered from deviant profiles on classroom environment instruments, and if so, should such atypical students be enrolled in regular classrooms (as so many

of the BD-2 sample were)? The two most seriously disturbed boys in the sample were medicated and mainstreamed (personal communication, Gabe Mancini, March 19, 1991). Should children with similar profiles be mainstreamed (with or without medical evaluation and subsequent treatment), or should Special Classes be retained, if only for the protection of regular ('normal') children?

Segregating students is an expensive option which may not necessarily improve global outcomes for BD children, especially since Special Classes lack the peer role models deemed necessary for behavior change. On the other hand, random or indiscriminate integration may result in the kinds of teacher intolerance and rejection discussed in Chapter II. However, current Canadian philosophy embraces the concept of mainstreaming, and segregation is only advised when children with deviant profiles cannot be accommodated elsewhere. Since mainstreaming is clearly the first route schools are expected to pursue, teachers are thus faced with the problem of managing disordered behavior when "investigations suggest that many regular educators lack the necessary preservice training to deal effectively with learners with exceptionalities" (Gable, Laycock, Maroney, & Smith, 1991, p. 3).

The application of climate data for classroom intervention with BD children has some relevance, but only it seems for BD-1-like students who are almost indistinguishable from regular boys. The evidence from this study suggests that programs accessed by less deviant (or more 'normal') BD children need not differ dramatically from those developed for regular students. Since their environment preferences are in directions anticipated by classroom environment theorists, congruence between their actual experiences and what they hope for would present few problems for teachers. Nor would 'achieving a fit' pose ethical problems for the practitioner. However, a person-environment fit approach cannot be entertained where a BD-2-like profile is concerned. If some children express a strong preference for a type of environment philosophically at odds with that considered beneficial to them, then the applicability of classroom environment theory for those children is necessarily called into question. How then do the results of this study translate into effective pedagogic practice where BD-2-like children are concerned?

Until further research examines and/or confirms atypical classroom climate responses, teachers enrolling behaviorally disordered students can, in the meantime, consider the observations of environment researchers. Leone (1990) asserts

that interactions occurring between BD students and their environment suggest that their problems cannot be considered in isolation from that environment. The interactive nature of environment and behavior is further highlighted by Kortering and Blackorby (1992) who state that educators must view the behaviors of BD students in combination with the setting in which they occur. Thus, an ecological approach that acknowledges Moos's (1979) environment dimensions, and considers Bandura's (1986) concept of reciprocal determinism, would target harmonious interaction between the physical, instructional, and affective/behavioral environments.

If some BD students prefer an environment characterized by friction, competition, disorder, and discord, should they be bombarded with the opposite of what they hope for, in order to reverse existing patterns of thinking/responding? Could they be 'reprogrammed'? Perhaps student behavior can be best understood through Wheldall and Merrett's observation that "in order to change children's classroom behaviour teachers must change their own ways of responding to pupils" (p. 87). Teachers might thus provide daily exposure to an environment heavily focused on downplaying atypical classroom preferences, while emphasizing structure, cooperation, group harmony, and individual satisfaction. Pedagogy based on a Best Practice approach might

include experimentation with classroom seating (Wheldall & Olds, 1987) and cooperative learning techniques (Slavin, 1983). Teacher tolerance, acceptance, and an "attitude of accommodation" (Downing, Simpson & Myles, 1990) might reduce fear of the behavioral contagion effect to which Safran and Safran (1985) refer.

Future Research

While the results of this study suggest that the classroom climate responses of some elementary BD children differ significantly from similarly identified children, further research is required before firm conclusions can be drawn from the data.

In the first instance, it would be desirable to replicate this study with a sample consisting exclusively of behaviorally disordered children, in sufficient numbers as to allow statistical inferences to be drawn about the relationship between BD subgroups. Grade and setting differences should also be explored with a larger sample. Achievement data based on performance in core subjects such as Reading, Spelling, and Arithmetic would flesh out the overall picture.

Researchers focusing on the environment responses of BD children should pursue additional information regarding behavior in other environments. Perhaps a community profile of behavioral responses could be targeted. For example, descriptions of behaviors could be reported in: the family home, other people's homes, shopping malls, stores, public events (concerts), sports (team relationships), public transportation, and school field trips. Preschool, family, and medical backgrounds might also be obtained.

A pre- and post-testing experiment replicating Fraser & Deer's (1983) research might be conducted, but only with BD students this time. The adapted MCI might be adopted, possibly with the exclusion of the Difficulty scale, but retaining the more robust Order and Organization scale. It would still be a user-friendly 25-item instrument suitable for rapid administration with whole groups. Interventions such as those suggested in this discussion would be implemented, and students' perceptions later collected. Comparison between the first and second set of responses would indicate whether a change in perceptions had occurred due to teacher interventions. While it is speculated that BD-1-like subtypes would respond favorably to the Fraser & Fisher approach, the most interesting results might emerge from post-treatment findings with BD-2-like groups.

Conclusion

This study has contributed to classroom climate research in a number of ways. Specifically, one of the existing instruments, the My Class Inventory (Short Form) was adapted for use with elementary students in Canada. The environment perceptions of behaviorally disordered children were subsequently obtained with the MCI for the first time, and results suggesting the existence of BD subtypes presented. While classroom environment theory appears to have practical merit for the more 'normal' BD subtype, the applicability of classroom climate philosophy with the more 'deviant' subtype is called into question. However, given the limitations discussed in this chapter, the major findings must be considered from a speculative perspective.

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APPENDIX I

CLASSROOM ENVIRONMENT INSTRUMENTS

MY CLASS INVENTORY

STUDENT ACTUAL SHORT FORM

DIRECTIONS

This is not a test. The questions are to find out what your class is actually like.

Each sentence is meant to describe what your actual classroom is like. Draw a circle around

YES if you AGREE with the sentence
NO if you DON'T AGREE with the sentence.

EXAMPLE
27. Most pupils in our class are good friends.

If you agree that most pupils in the class actually are good friends, circle the Yes like this:

(Yes) No

If you don't agree that most pupils in the class actually are good friends, circle the No like this:

Yes (No)

Please answer all questions. If you change your mind about an answer, just cross it out and circle the new answer. Don't forget to write your name and other details below.

NAME _____ SCHOOL _____ CLASS _____

Remember you are describing your actual classroom		Circle Your Answer	For Teacher's Use
1.	The pupils enjoy their schoolwork in my class.	Yes No	____
2.	Pupils are always fighting with each other.	Yes No	____
3.	Pupils often race to see who can finish first.	Yes No	____
4.	In my class the work is hard to do.	Yes No	____
5.	In my class everybody is my friend.	Yes No	____
6.	Some pupils are not happy in my class.	Yes No	R ____
7.	Some pupils in my class are mean.	Yes No	____
8.	Most pupils want their work to be better than their friend's work.	Yes No	____
9.	Most pupils can do their schoolwork without help.	Yes No	R ____
10.	Some pupils in my class are not my friends.	Yes No	R ____
11.	Pupils seem to like my class.	Yes No	____
12.	Many pupils in my class like to fight.	Yes No	____
13.	Some pupils feel bad when they don't do as well as the others.	Yes No	____
14.	Only the smart pupils can do their work.	Yes No	____
15.	All pupils in my class are close friends.	Yes No	____
16.	Some pupils don't like my class.	Yes No	R ____
17.	Certain pupils always want to have their own way.	Yes No	____
18.	Some pupils always try to do their work better than the others.	Yes No	____
19.	Schoolwork is hard to do.	Yes No	____
20.	All pupils in my class like one another.	Yes No	____
21.	My class is fun.	Yes No	____
22.	Pupils in my class fight a lot.	Yes No	____
23.	A few pupils in my class want to be first all of the time.	Yes No	____
24.	Most pupils in my class know how to do their work.	Yes No	R ____
25.	Pupils in my class like each other as friends.	Yes No	____

For Teacher's Use Only: S _____ F _____ Cm _____ D _____ Ch _____

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MY CLASS INVENTORY

STUDENT PREFERRED SHORT FORM

DIRECTIONS

This is not a test. The questions are to find out what you would like or prefer your class to be like.

Each sentence is meant to describe what your preferred class is like. Draw a circle around

YES if you AGREE with the sentence
NO if you DON'T AGREE with the sentence.

EXAMPLE

27. Most pupils in our class would be good friends.

If you **agree** that you'd prefer that most pupils in the class would be good friends, circle the **Yes** like this:

(Yes) No

If you **don't agree** that you would prefer that most pupils in the class would be good friends, circle the No like this:

Yes (No)

Please answer all questions. If you change your mind about an answer, just cross it out and circle the new answer. Don't forget to write your name and other details below.

NAME _____ SCHOOL _____ CLASS _____

Remember you are describing your preferred classroom		Circle Your Answer	For Teacher's Use
1.	The pupils would enjoy their schoolwork in my class.	Yes No	____
2.	Pupils would be always fighting with each other.	Yes No	____
3.	Pupils often would race to see who can finish first.	Yes No	____
4.	In my class the work would be hard to do.	Yes No	____
5.	In my class everybody would be my friend.	Yes No	____
6.	Some pupils wouldn't be happy in my class.	Yes No	R ____
7.	Some pupils in my class would be mean.	Yes No	____
8.	Most pupils would want their work to be better than their friend's work.	Yes No	____
9.	Most pupils would be able to do their schoolwork without help.	Yes No	R ____
10.	Some pupils in my class would not be my friends.	Yes No	R ____
11.	Pupils would seem to like my class.	Yes No	____
12.	Many pupils in my class would like to fight.	Yes No	____
13.	Some pupils would feel bad when they didn't do as well as the others.	Yes No	____
14.	Only the smart pupils would be able to do their work.	Yes No	____
15.	All pupils in my class would be close friends.	Yes No	____
16.	Some pupils wouldn't like my class.	Yes No	R ____
17.	Certain pupils always would want to have their own way.	Yes No	____
18.	Some pupils always would try to do their work better than the others.	Yes No	____
19.	Schoolwork would be hard to do.	Yes No	____
20.	All pupils in my class would like one another.	Yes No	____
21.	My class would be fun.	Yes No	____
22.	Pupils in my class would fight a lot.	Yes No	____
23.	A few pupils in my class would want to be first all of the time.	Yes No	____
24.	Most pupils in my class would know how to do their work.	Yes No	R ____
25.	Pupils in my class would like each other as friends.	Yes No	____

For Teacher's Use Only: S ____ F ____ Cm ____ D ____ Ch ____

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CLASSROOM ENVIRONMENT SCALE

NAME: _____ Grade: _____

SCHOOL: _____

How the Classroom is

1.	Students are quiet in this class most of the time.	YES NO	
2.	The teacher spends very little time just being friends with students.	YES NO	R
3.	Students fool around a lot in this class.	YES NO	R
4.	This teacher is interested in how students think and feel.	YES NO	
5.	This class is often very noisy.	YES NO	R
6.	The teacher is more like a friend than a person in charge.	YES NO	
7.	The teacher tries hard to help students.	YES NO	
8.	Classwork is usually clear, so everyone knows what to do.	YES NO	
9.	This teacher finds out what students want to learn about.	YES NO	
10.	Students often interrupt the teacher when he/she is talking.	YES NO	R

FOR TEACHER USE ONLY

TS ___ O/O ___

CLASSROOM ENVIRONMENT SCALE

NAME: _____ Grade: _____

SCHOOL: _____

How the Classroom Would be

1.	Students would be quiet in the class most of the time.	YES NO	
2.	The teacher would spend very little time just being friends with students.	YES NO	R
3.	Students would fool around a lot in the class.	YES NO	R
4.	The teacher would be interested in how students think and feel.	YES NO	
5.	The class would often be very noisy.	YES NO	R
6.	The teacher would be more like a friend than a person in charge.	YES NO	
7.	The teacher would try hard to help students.	YES NO	
8.	Classwork would be clear, so everyone would know what to do.	YES NO	
9.	The teacher would find out what students want to learn about.	YES NO	
10.	Students would often interrupt the teacher when he/she was talking.	YES NO	R

FOR TEACHER USE ONLY

TS ___ O/O ___

NAME_____ SCHOOL_____ CLASS_____

Remember you are describing your actual classroom	Circle Your Answer	For Teacher Use	Remember you are describing your actual classroom	Circle Your Answer	For Teacher Use
Students put a lot of energy into what they do here.	True False		13. Students are often "clockwatching" in this class.	True False	R
Students in this class get to know each other really well.	True False		14. A lot of friendships have been made in this class.	True False	
This teacher spends very little time just talking with students.	True False	R	15. The teacher is more like a friend than an authority.	True False	
We often spend more time discussing outside student activities than class-related material.	True False	R	16. Students don't do much work in this class.	True False	R
This is a well-organized class.	True False		17. Students fool around a lot in this class.	True False	R
There is a clear set of rules for students to follow.	True False		18. The teacher explains what will happen if a student breaks a rule.	True False	
Students daydream a lot in this class.	True False	R	19. Most students in this class really pay attention to what the teacher is saying.	True False	
Students in this class aren't very interested in getting to know other students.	True False	R	20. It's easy to get a group together for a project.	True False	
The teacher takes a personal interest in students.	True False		21. The teacher goes out of his/her way to help students.	True False	
Getting a certain amount of classwork done is very important in this class.	True False		22. This class is more a social hour than a place to learn something.	True False	R
Students are almost always quiet in this class.	True False		23. This class is often very noisy.	True False	R
Rules in this class seem to change a lot.	True False	R	24. The teacher explains what the rules are.	True False	

For Teacher Use Only

I___ A___ TS___ TO___ OO___ RC___

APPENDIX II

EPSB IDENTIFICATION CRITERIA

ELIGIBILITY REQUEST

SEVERE BEHAVIOUR DISORDERS (INCLUDING AUTISM)

STUDENT NUMBER _____ CURRENT ELIGIBILITY _____ GRADE _____

LEGAL NAME _____
LAST NAME FIRST NAME MIDDLE NAME

COURTESY NAME _____ BIRTHDATE _____

SCHOOL NAME _____ # _____ AREA _____

STUDENT ADDRESS _____ PHONE _____

IF NEW TO THE DISTRICT THIS YEAR, INDICATE REGISTRATION DATE _____

IF PLACEMENT IN A DISTRICT CENTRE IS BEING REQUESTED, PLEASE CHECK ___

ATTACH ADDITIONAL DOCUMENTATION TO THE FORM

CLINICAL DIAGNOSIS Provide statement by psychiatrist, psychology, or behaviour specialist which documents the nature and severity of the disorder and the date the diagnosis was made.

OTHER AGENCIES Indicate other agencies which have been involved with the student because of the behaviour disorder.

ACADEMIC FUNCTIONING Describe academic functioning, including assessment results if available.

SCHOOL ACTION Describe actions undertaken by the school to change the maladaptive behaviour.

OFFICE USE ENTERED 1 2

MEETS CRITERIA ___ DOES NOT MEET CRITERIA ___ REASON _____

REVIEWED BY ___ ELIGIBILITY _____ LEVEL ___ DATE _____ SCHOOL _____

SEVERE BEHAVIOUR DISORDERS ELIGIBILITY REQUEST

STUDENT NAME _____ SCHOOL _____

THE FOUR BEHAVIOURS OF GREATEST CONCERN Provide information on the frequency, severity and duration of these behaviours.

CHECKLIST OF ABERRANT BEHAVIOURS

For each of the behaviours below, circle the term which best indicates the frequency that the behaviour has been exhibited in school DURING THE PAST THREE MONTHS.

D - daily (at least once a day or 5 times per week), W - weekly (at least once a week, but less than 5 times per week), M - monthly (at least once a month, but less than weekly), O - occasionally (less than once a month, but the behaviour has been exhibited during the school year), N - never (the behaviour has not been observed in the school setting)

	AGGRESSION AND DESTRUCTIVENESS
D W M O N	Violent temper tantrums (screaming, throwing self on floor)
D W M O N	Temper tantrums (crying, screaming, stamping feet)
D W M O N	Injures others when in rage
D W M O N	Injures others deliberately when not in rage
D W M O N	Uses objects as weapons against others
D W M O N	Damages own property --toys, clothing, books
D W M O N	Vandalism--damages public property
D W M O N	Hurts or kills animals
D W M O N	Interferes with others' activities, (eg. blocking passage, snatching things away)
D W M O N	Swears, curses, uses obscene language
D W M O N	Yells or screams threats of violence
D W M O N	Deliberate violation of school rules
D W M O N	Is hostile toward people in authority
D W M O N	Disrupts games, group activities by refusing to follow rules
D W M O N	Defiant, non-compliant
D W M O N	Argumentative
D W M O N	Intimidating
D W M O N	Takes out anger on objects, or displaces to innocent people
D W M O N	Steals
D W M O N	Lies about situations, self or others
	EMOTIONAL CONTROL
D W M O N	Severe negative reaction to criticism or correction
D W M O N	Blames own mistakes on others
D W M O N	Tantrums if does not get own way
D W M O N	Complains of unfairness even when equal shares or privileges have been given
D W M O N	Acts suspicious of others
D W M O N	Marked excessive mood swings for no apparent reason
D W M O N	Talks about suicide
D W M O N	Frightened and insecure in daily activities
D W M O N	Incoherent speech under stress
D W M O N	Severe and persistent fears regarding new situations, tests, etc.
D W M O N	Demands excessive praise
D W M O N	Demands excessive reassurance
D W M O N	Overestimates own abilities
D W M O N	Excessively dependent
D W M O N	Inability to adapt behaviour to changing expectations
D W M O N	Behaves in manner expected for much younger child

	STEREOTYPED/RITUALISTIC MANNERISMS
D W M O N	Self Stimulation: rocking, hand flapping, whirling
D W M O N	Self Injury: banging head, biting hand
D W M O N	Echolalia: echoes questions & statements made by others
D W M O N	Verbal Perseveration: repeats sounds, words or phrases over and over
D W M O N	Insists on keeping certain objects with him
D W M O N	Routinely feels, smells, or tastes objects inappropriately
D W M O N	Frequently gets involved in complicated rituals (e.g. lining things up)
D W M O N	Fixates on one characteristic (e.g. size, position, colour)
D W M O N	Strong negative reaction to changes in routine, environment
D W M O N	Compulsive behaviours (e.g. overly meticulous, frequent hand washing)
	LACK OF AFFECT
D W M O N	Seems not to hear, so a hearing loss is suspected
D W M O N	Speech is atonal and arhythmic
D W M O N	Not responsive to others expressions or feelings
D W M O N	Actively avoids eye contact, looks through people
D W M O N	Resists being touched or held
D W M O N	Unaware of surroundings, may be oblivious to dangers
D W M O N	Preoccupied with inanimate objects
D W M O N	Does not use "I", may have pronoun reversal (e.g. you for I)
D W M O N	Does not respond when called by name
D W M O N	Sits or stands in one position for a long period of time
D W M O N	Isolates self, chooses not to participate with others
D W M O N	Is unable to distinguish fantasy from reality
D W M O N	Confusion of time and/or place
D W M O N	Appears flustered and confused
D W M O N	Depressed, chronic sadness
D W M O N	Mute, even though able to speak
	ACTIVITY LEVEL
D W M O N	Runs away if not constantly supervised
D W M O N	Does not stay in seat during group sessions
D W M O N	Constantly runs or jumps around room
D W M O N	Highly distractible, does not attend for more than a minute
D W M O N	Fingers, feet, hands constantly in motion (tapping, drumming)
D W M O N	Does not stay on task unless someone is standing over him
D W M O N	Requires excessive supervision and control
D W M O N	Highly impulsive, has great difficulty holding back a response
	ECCENTRIC HABITS AND MANNERISMS
D W M O N	Has peculiar posture or mannerisms
D W M O N	Talks to self out loud
D W M O N	Makes growling, humming or other unpleasant noises
D W M O N	Laughs or cries inappropriately
D W M O N	Hoards things, including food
D W M O N	Saves and wears unusual articles
D W M O N	Eats inedibles
D W M O N	Removes or tears off own clothing
D W M O N	Smears or plays with urine or fecal matter
D W M O N	Hallucinates
D W M O N	Conversation irrelevant and nonsensical
	OTHER BEHAVIOURS
D W M O N	Touches others inappropriately
D W M O N	Sexually aggressive, abusive
D W M O N	Masturbates publicly
D W M O N	Covers ears at many sounds, or avoids lights
D W M O N	Does not show a startle response to loud noise
D W M O N	Does not react to pain (e.g. cuts, bruises)
D W M O N	Pretends to be ill
D W M O N	Frequent headaches, stomach aches, nausea
D W M O N	Nervous habits, eg. tics, scratching
D W M O N	Learns tasks, but forgets quickly (from one moment to the next)
D W M O N	Incontinent without physical cause
D W M O N	Humour markedly inappropriate for time, place, occasion
D W M O N	Wanders off if not constantly supervised